```
  1  DIVLTQSPAS LAVSLGQRAT MSCRAGESVD IFGVGFLHWY QQKPGQPPKL
 51  LIYRASNLES GIPVRFSGTG SRTDFTLIID PVEADDVATY YCQQTNEDPY
101  TFGGGTKLEI KGGGGSGGGG SGGGGSGGGG SGGGGSGGGG SEVQLQQSGA
151  ELVEPGASVK LSCTASGFNI KDTYMHWVKQ RPEQGLEWIG RIDPANGNSK
201  YVPKFQGKAT ITADTSSNTA YLQLTSLTSE DTAVYYCAPF GYYVSDYAMA
251  YWGQGTSVTV SS (SEQ ID NO:1)
```

FIG._1A

```
  1  GACATCGTCC TGACCCAGAG CCCGGCAAGC CTGGCTGTTT CCCTGGGCCA
 51  GCGTGCCACT ATGTCCTGCA GAGCGGGTGA GTCTGTTGAC ATTTTCGGTG
101  TCGGTTTTCT GCACTGGTAC CAACAGAAAC CGGGTCAGCC GCCAAAACTG
151  CTGATCTATC GTGCTTCTAA CCTGGAGTCC GGCATCCCGG TACGTTTCTC
201  CGGTACTGGC TCTCGTACTG ATTTTACCCT GATTATCGAC CCGGTGGAAG
251  CAGACGATGT TGCCACCTAC TATTGCCAGC AGACCAACGA GGATCCGTAC
301  ACCTTCGGTG GCGGTACTAA ACTGGAGATC AAAGGCGGTG GTGGTTCTGG
351  TGGTGGTGGT AGCGGCGGCG GTGGTAGCGG TGGCGGTGGC AGCGGTGGTG
401  GTGGCTCTGG TGGCGGTGGC TCTGAAGTGC AGCTGCAGCA GTCCGGTGCG
451  GAGCTCGTTG AACCGGGCGC TTCTGTGAAA CTGTCTTGCA CTGCATCTGG
501  TTTCAACATT AAGGACACCT ACATGCACTG GGTGAAACAA CGCCCGGAAC
551  AGGGTCTGGA GTGGATCGGT CGCATCGATC CGGCTAACGG TAACAGCAAA
601  TACGTGCCAA AATTCCAGGG TAAAGCAACC ATCACTGCTG ATACCTCCTC
651  TAACACTGCT TACCTGCAGC TGACTTCCCT GACTAGCGAA GACACCGCGG
701  TTTATTACTG CGCTCCGTTC GGCTACTATG TCAGCGATTA CGCAATGGCC
751  TACTGGGGTC AGGGCACCTC TGTTACCGTT TCTAGC (SEQ ID NO:3)
```

FIG._1B

```
263  TPVSEKQL AEVVANTITP LMKAQSVPGM AVAVIYQGKP
301  HYYTFGKADI AANKPVTPQT LFELGSISKT FTGVLGGDAI ARGEISLDDA
351  VTRYWPQLTG KQWQGIRMLD LATYTAGGLP LQVPDEVTDN ASLLRFYQNW
401  QPQWKPGTTR LYANASIGLF GALAVKPSGM PYEQAMTTRV LKPLKLDHTW
451  INVPKAEEAH YAWGYRDGKA VRVSPGMLDA QAYGVKTNVQ DMANWVMANM
501  APENVADASL KQGIALAQSR YWRIGSMYQG LGWEMLNWPV EANTVVETSF
551  GNVALAPLPV AEVNPPAPPV KASWVHKTGS TGGFGSYVAF IPEKQIGIVM
602  LANTSYPNPA RVEAAYHILE ALQ (SEQ ID NO:11)
```

FIG._1C

```
   1  ACACCGGTGT CAGAAAAACA GCTGGCGGAG GTGGTCGCGA ATACGATTAC
  51  CCCGCTGATG AAAGCCCAGT CTGTTCCAGG CATGGCGGTG GCCGTTATTT
 101  ATCAGGGAAA ACCGCACTAT TACACATTTG GCAAGGCCGA TATCGCGGCG
 151  AATAAACCCG TTACGCCTCA GACCCTGTTC GAGCTGGGTT CTATAAGTAA
 201  AACCTTCACC GGCGTTTTAG GTGGGGATGC CATTGCTCGC GGTGAAATTT
 251  CGCTGGACGA TGCGGTGACC AGATACTGGC CACAGCTGAC GGGCAAGCAG
 301  TGGCAGGGTA TTCGTATGCT GGATCTCGCC ACCTACACCG CTGGCGGCCT
 351  GCCGCTACAG GTACCGGATG AGGTCACGGA TAACGCCTCC CTGCTGCGCT
 401  TTTATCAAAA CTGGCAGCCG CAGTGGAAGC CTGGCACAAC GCGTCTTTAC
 451  GCCAACGCCA GCATCGGTCT TTTTGGTGCG CTGGCGGTCA AACCTTCTGG
 501  CATGCCCTAT GAGCAGGCCA TGACGACGCG GGTCCTTAAG CCGCTCAAGC
 551  TGGACCATAC CTGGATTAAC GTGCCGAAAG CGGAAGAGGC GCATTACGCC
 601  TGGGGCTATC GTGACGGTAA AGCGGTGCGC GTTTCGCCGG GTATGCTGGA
 651  TGCACAAGCC TATGGCGTGA AAACCAACGT GCAGGATATG GCGAACTGGG
 701  TCATGGCAAA CATGGCGCCG GAGAACGTTG CTGATGCCTC ACTTAAGCAG
 751  GGCATCGCGC TGGCGCAGTC GCGCTACTGG CGTATCGGGT CAATGTATCA
 801  GGGTCTGGGC TGGGAGATGC TCAACTGGCC CGTGGAGGCC AACACGGTGG
 851  TCGAGACGAG TTTTGGTAAT GTAGCACTGG CGCCGTTGCC CGTGGCAGAA
 901  GTGAATCCAC CGGCTCCCCC GGTCAAAGCG TCCTGGGTCC ATAAAACGGG
 951  CTCTACTGGC GGGTTTGGCA GCTACGTGGC CTTTATTCCT GAAAAGCAGA
1001  TCGGTATTGT GATGCTCGCG AATACAAGCT ATCCGAACCC GGCACGCGTT
1051  GAGGCGGCAT ACCATATCCT CGAGGCGCTA CAG (SEQ ID NO:12)
```

FIG._1D

```
   1  DIVLTQSPAS LAVSLGQRAT MSCRAGESVD IFGVGFLHWY QQKPGQPPKL
  51  LIYRASNLES GIPVRFSGTG SRTDFTLIID PVEADDVATY YCQQTNEDPY
 101  TFGGGTKLEI KGGGGSGGGG SGGGGSGGGG SGGGGSGGGG SEVQLQQSGA
 151  ELVEPGASVK LSCTASGFNI KDTYMHWVKQ RPEQGLEWIG RIDPANGNSK
 201  YVPKFQGKAT ITADTSSNTA YLQLTSLTSE DTAVYYCAPF GYYVSDYAMA
 251  YWGQGTSVTV SSTPVSEKQL AEVVANTITP LMKAQSVPGM AVAVIYQGKP
 301  HYYTFGKADI AANKPVTPQT LFELGSISKT FTGVLGGDAI ARGEISLDDA
 351  VTRYWPQLTG KQWQGIRMLD LATYTAGGLP LQVPDEVTDN ASLLRFYQNW
 401  QPQWKPGTTR LYANASIGLF GALAVKPSGM PYEQAMTTRV LKPLKLDHTW
 451  INVPKAEEAH YAWGYRDGKA VRVSPGMLDA QAYGVKTNVQ DMANWVMANM
 501  APENVADASL KQGIALAQSR YWRIGSMYQG LGWEMLNWPV EANTVVETSF
 551  GNVALAPLPV AEVNPPAPPV KASWVHKTGS TGGFGSYVAF IPEKQIGIVM
 601  LANTSYPNPA RVEAAYHILE ALQ (SEQ ID NO:2)
```

FIG._1E

```
   1  GACATCGTCC TGACCCAGAG CCCGGCAAGC CTGGCTGTTT CCCTGGGCCA
  51  GCGTGCCACT ATGTCCTGCA GAGCGGGTGA GTCTGTTGAC ATTTTCGGTG
 101  TCGGTTTTCT GCACTGGTAC CAACAGAAAC CGGGTCAGCC GCCAAAACTG
 151  CTGATCTATC GTGCTTCTAA CCTGGAGTCC GGCATCCCGG TACGTTTCTC
 201  CGGTACTGGC TCTCGTACTG ATTTTACCCT GATTATCGAC CCGGTGGAAG
 251  CAGACGATGT TGCCACCTAC TATTGCCAGC AGACCAACGA GGATCCGTAC
 301  ACCTTCGGTG GCGGTACTAA ACTGGAGATC AAAGGCGGTG GTGGTTCTGG
 351  TGGTGGTGGT AGCGGCGGCG GTGGTAGCGG TGGCGGTGGC AGCGGTGGTG
 401  GTGGCTCTGG TGGCGGTGGC TCTGAAGTGC AGCTGCAGCA GTCCGGTGCG
 451  GAGCTCGTTG AACCGGGCGC TTCTGTGAAA CTGTCTTGCA CTGCATCTGG
 501  TTTCAACATT AAGGACACCT ACATGCACTG GGTGAAACAA CGCCCGGAAC
 551  AGGGTCTGGA GTGGATCGGT CGCATCGATC CGGCTAACGG TAACAGCAAA
 601  TACGTGCCAA AATTCCAGGG TAAAGCAACC ATCACTGCTG ATACCTCCTC
 651  TAACACTGCT TACCTGCAGC TGACTTCCCT GACTAGCGAA GACACCGCGG
 701  TTTATTACTG CGCTCCGTTC GGCTACTATG TCAGCGATTA CGCAATGGCC
 751  TACTGGGGTC AGGGCACCTC TGTTACCGTT TCTAGCACAC CGGTGTCAGA
 801  AAAACAGCTG GCGGAGGTGG TCGCGAATAC GATTACCCCG CTGATGAAAG
 851  CCCAGTCTGT TCCAGGCATG GCGGTGGCCG TTATTTATCA GGGAAAACCG
 901  CACTATTACA CATTTGGCAA GGCCGATATC GCGGCGAATA AACCCGTTAC
 951  GCCTCAGACC CTGTTCGAGC TGGGTTCTAT AAGTAAAACC TTCACCGGCG
1001  TTTTAGGTGG GGATGCCATT GCTCGCGGTG AAATTTCGCT GGACGATGCG
1051  GTGACCAGAT ACTGGCCACA GCTGACGGGC AAGCAGTGGC AGGGTATTCG
1101  TATGCTGGAT CTCGCCACCT ACACCGCTGG CGGCCTGCCG CTACAGGTAC
1151  CGGATGAGGT CACGGATAAC GCCTCCCTGC TGCGCTTTTA TCAAAACTGG
1201  CAGCCGCAGT GGAAGCCTGG CACAACGCGT CTTTACGCCA ACGCCAGCAT
1251  CGGTCTTTTT GGTGCGCTGG CGGTCAAACC TTCTGGCATG CCCTATGAGC
1301  AGGCCATGAC GACGCGGGTC CTTAAGCCGC TCAAGCTGGA CCATACCTGG
1351  ATTAACGTGC CGAAAGCGGA AGAGGCGCAT TACGCCTGGG GCTATCGTGA
1401  CGGTAAAGCG GTGCGCGTTT CGCCGGGTAT GCTGGATGCA CAAGCCTATG
1451  GCGTGAAAAC CAACGTGCAG GATATGGCGA ACTGGGTCAT GGCAAACATG
1501  GCGCCGGAGA ACGTTGCTGA TGCCTCACTT AAGCAGGGCA TCGCGCTGGC
1551  GCAGTCGCGC TACTGGCGTA TCGGGTCAAT GTATCAGGGT CTGGGCTGGG
1601  AGATGCTCAA CTGGCCCGTG GAGGCCAACA CGGTGGTCGA GACGAGTTTT
1651  GGTAATGTAG CACTGGCGCC GTTGCCCGTG GCAGAAGTGA ATCCACCGGC
1701  TCCCCCGGTC AAAGCGTCCT GGGTCCATAA AACGGGCTCT ACTGGCGGGT
1751  TTGGCAGCTA CGTGGCCTTT ATTCCTGAAA AGCAGATCGG TATTGTGATG
1801  CTCGCGAATA CAAGCTATCC GAACCCGGCA CGCGTTGAGG CGGCATACCA
1851  TATCCTCGAG GCGCTACAG (SEQ ID NO:4)
```

FIG._1F

```
   1  DIVLTQSPAS LSVSLGQRAT MSCRAGESVD IFGVGFLHWY QQKPGQPPKL
  51  LIYRASNLES GIPVRFSGTG SGTDFTLIID PVEADDVATY YCQQTNEDPY
 101  TFGGGTKLEI KGGGGSGGGG SGGGGSGGGG SGGGGSGGGG SEVQLQQSGA
 151  ELVEPGASVK LSCTASGFNI KDTYMHWVKQ RPEQGLEWIG RIDPANGNSK
 201  YVPKFQGKAT ITADTSSNTA YLQLTSLTSE DTAVYYCAPF GYYVSDYAMA
 251  YWGQGTSVTV SS (SEQ ID NO:5)
```

FIG._2A

```
  1  GACATCGTCC TGACCCAGAG CCCGGCAAGC CTGTCTGTTT CCCTGGGCCA
 51  GCGTGCCACT ATGTCCTGCA GAGCGGGTGA GTCTGTTGAC ATTTTCGGTG
101  TCGGTTTTCT GCACTGGTAC CAACAGAAAC CGGGTCAGCC GCCAAAACTG
151  CTGATCTATC GTGCTTCTAA CCTGGAGTCC GGCATCCCGG TACGTTTCTC
201  CGGTACTGGC TCTGGTACTG ATTTTACCCT GATTATCGAC CCGGTGGAAG
251  CAGACGATGT TGCCACCTAC TATTGCCAGC AGACCAACGA GGATCCGTAC
301  ACCTTCGGTG GCGGTACTAA ACTGGAGATC AAAGGCGGTG GTGGTTCTGG
351  TGGTGGTGGT AGCGGTGGCG GTGGTAGCGG TGGCGGTGGC AGCGGTGGTG
401  GTGGCTCTGG TGGCGGTGGC TCTGAAGTGC AGCTGCAGCA GTCCGGTGCG
451  GAGCTCGTTG AACCGGGCGC TTCTGTGAAA CTGTCTTGCA CTGCATCTGG
501  TTTCAACATT AAGGACACCT ACATGCACTG GGTGAAACAA CGCCCGGAAC
551  AGGGTCTGGA GTGGATCGGT CGCATCGATC CGGCTAACGG TAACAGCAAA
601  TACGTGCCAA AATTCCAGGG TAAAGCAACC ATCACTGCTG ATACCTCCTC
651  TAACACTGCT TACCTGCAGC TGACTTCCCT GACTAGCGAA GACACCGCGG
701  TTTATTACTG CGCTCCGTTC GGCTACTATG TCAGCGATTA CGCAATGGCC
751  TACTGGGGTC AGGGCACCTC TGTTACCGTT TCTAGC (SEQ ID NO:6)
```

FIG._2B

```
262  TPVSEKQL AEVVANTITP LMAAQSVPGM AVAVIYQGKP
301  HYYTFGKADI AANKPVTPQT LFELGSISKT FTGVLGGDAI ARGEISLDDA
351  VTRYWPQLTG KQWQGIRMLD LATYTAGGLP LQVPDEVTDN ASLLRFYQNW
401  QPQWKPGTTR LYANASIGLF GALAVKPSGM PYEQAMTTRV LKPLKLDHTW
451  INVPKAEEAH YAWGYRDGKA VRVSPGMLDA QAYGVKTNVQ DMANWVMANM
501  APENVADASL KQGIALAQSR YWRIGSMYQG LGWEMLNWPV EANTVVETSF
551  GNVALAPLPV AEVNPPAPPV KASWVHKTGS TGGFGAYVAF IPEKQIGIVM
601  LANTSYPNPA RVEAAYHILE ALQ (SEQ ID NO:13)
```

FIG._3

```
  1  DIVLTQSPAS LSVSLGQRAT MSCRAGESVD IFGVGFLHWY QQKPGQPPKL
 51  LIYRASNLES GIPVRFSGTG SGTDFTLIID PVEADDVATY YCQQTNEDPY
101  TFGGGTKLEI KGGGGSGGGG SGGGGSGGGG SGGGGSGGGG SEVQLQQSGA
151  ELVEPGASVK LSCTASGFNI KDTYMHWVKQ RPEQGLEWIG RIDPANGNSK
201  YVPKFQGKAT ITADTSSNTA YLQLTSLTSE DTAVYYCAPF GYYVSDYAMA
251  YWGQGTSVTV SSTPVSEKQL AEVVANTITP LMKAQSVPGM AVAVIYQGKP
301  HYYTFGKADI AANKPVTPQT LFELGSISKT FTGVLGGDAI ARGEISLDDA
351  VTRYWPQLTG KQWQGIRMLD LATYTAGGLP LQVPDEVTDN ASLLRFYQNW
401  QPQWKPGTTR LYANASIGLF GALAVKPSGM PYEQAMTTRV LKPLKLDHTW
451  INVPKAEEAH YAWGYRDGKA VRVSPGMLDA QAYGVKTNVQ DMANWVMANM
501  APENVADASL KQGIALAQSR YWRIGSMYQG LGWEMLNWPV EANTVVETSF
551  GNVALAPLPV AEVNPPAPPV KASWVHKTGS TGGFGSYVAF IPEKQIGIVM
601  LANTSYPNPA RVEAAYHILE ALQ (SEQ ID NO:7)
```

FIG._4A

```
   1  GACATCGTCC TGACCCAGAG CCCGGCAAGC CTGTCTGTTT CCCTGGGCCA
  51  GCGTGCCACT ATGTCCTGCA GAGCGGGTGA GTCTGTTGAC ATTTTCGGTG
 101  TCGGTTTTCT GCACTGGTAC CAACAGAAAC CGGGTCAGCC GCCAAAACTG
 151  CTGATCTATC GTGCTTCTAA CCTGGAGTCC GGCATCCCGG TACGTTTCTC
 201  CGGTACTGGC TCTGGTACTG ATTTTACCCT GATTATCGAC CCGGTGGAAG
 251  CAGACGATGT TGCCACCTAC TATTGCCAGC AGACCAACGA GGATCCGTAC
 301  ACCTTCGGTG GCGGTACTAA ACTGGAGATC AAAGGCGGTG GTGGTTCTGG
 351  TGGTGGTGGT AGCGGTGGCG GTGGTAGCGG TGGCGGTGGC AGCGGTGGTG
 401  GTGGCTCTGG TGGCGGTGGC TCTGAAGTGC AGCTGCAGCA GTCCGGTGCG
 451  GAGCTCGTTG AACCGGGCGC TTCTGTGAAA CTGTCTTGCA CTGCATCTGG
 501  TTTCAACATT AAGGACACCT ACATGCACTG GGTGAAACAA CGCCCGGAAC
 551  AGGGTCTGGA GTGGATCGGT CGCATCGATC CGGCTAACGG TAACAGCAAA
 601  TACGTGCCAA AATTCCAGGG TAAAGCAACC ATCACTGCTG ATACCTCCTC
 651  TAACACTGCT TACCTGCAGC TGACTTCCCT GACTAGCGAA GACACCGCGG
 701  TTTATTACTG CGCTCCGTTC GGCTACTATG TCAGCGATTA CGCAATGGCC
 751  TACTGGGGTC AGGGCACCTC TGTTACCGTT TCTAGCACAC CGGTGTCAGA
 801  AAAACAGCTG GCGGAGGTGG TCGCGAATAC GATTACCCCG CTGATGAAAG
 851  CCCAGTCTGT TCCAGGCATG GCGGTGGCCG TTATTTATCA GGGAAAACCG
 901  CACTATTACA CATTTGGCAA GGCCGATATC GCGGCGAATA AACCCGTTAC
 951  GCCTCAGACC CTGTTCGAGC TGGGTTCTAT AAGTAAAACC TTCACCGGCG
1001  TTTTAGGTGG GGATGCCATT GCTCGCGGTG AAATTTCGCT GGACGATGCG
1051  GTGACCAGAT ACTGGCCACA GCTGACGGGC AAGCAGTGGC AGGGTATTCG
1101  TATGCTGGAT CTCGCCACCT ACACCGCTGG CGGCCTGCCG CTACAGGTAC
1151  CGGATGAGGT CACGGATAAC GCCTCCCTGC TGCGCTTTTA TCAAAACTGG
1201  CAGCCGCAGT GGAAGCCTGG CACAACGCGT CTTTACGCCA ACGCCAGCAT
1251  CGGTCTTTTT GGTGCGCTGG CGGTCAAACC TTCTGGCATG CCCTATGAGC
1301  AGGCCATGAC GACGCGGGTC CTTAAGCCGC TCAAGCTGGA CCATACCTGG
1351  ATTAACGTGC CGAAAGCGGA AGAGGCGCAT TACGCCTGGG GCTATCGTGA
1401  CGGTAAAGCG GTGCGCGTTT CGCCGGGTAT GCTGGATGCA CAAGCCTATG
1451  GCGTGAAAAC CAACGTGCAG GATATGGCGA ACTGGGTCAT GGCAAACATG
1501  GCGCCGGAGA ACGTTGCTGA TGCCTCACTT AAGCAGGGCA TCGCGCTGGC
1551  GCAGTCGCGC TACTGGCGTA TCGGGTCAAT GTATCAGGGT CTGGGCTGGG
1601  AGATGCTCAA CTGGCCCGTG GAGGCCAACA CGGTGGTCGA GACGAGTTTT
1651  GGTAATGTAG CACTGGCGCC GTTGCCCGTG GCAGAAGTGA ATCCACCGGC
1701  TCCCCCGGTC AAAGCGTCCT GGGTCCATAA AACGGGCTCT ACTGGCGGGT
1751  TTGGCAGCTA CGTGGCCTTT ATTCCTGAAA AGCAGATCGG TATTGTGATG
1801  CTCGCGAATA CAAGCTATCC GAACCCGGCA CGCGTTGAGG CGGCATACCA
1851  TATCCTCGAG GCGCTACAG (SEQ ID NO:9)
```

FIG._4B

1 DIVLTQSPAS L**S**VSLGQRAT MSCRAGESVD IFGVGFLHWY QQKPGQPPKL
51 LIYRASNLES GIPVRFSGTG S**G**TDFTLIID PVEADDVATY YCQQTNEDPY
101 TFGGGTKLEI *KGGGGSGGGG SGGGGSGGGG SGGGGSGGGG SE*VQLQQSGA
151 ELVEPGASVK LSCTASGFNI KDTYMHWVKQ RPEQGLEWIG RIDPANGNSK
201 YVPKFQGKAT *ITADTSSNTA* YLQLTSLTSE DTAVYYCAPF GYYVSDYAMA
251 YWGQGTSVTV SSTPVSEKQL AEVVANTITP LM**A**AQSVPGM AVAVIYQGKP
301 HYYTFGKADI AANKPVTPQT LFELGSISKT FTGVLGGDAI ARGEISLDDA
351 VTRYWPQLTG KQWQGIRMLD LATYTAGGLP LQVPDEVTDN ASLLRFYQNW
401 QPQWKPGTTR LYANASIGLF GALAVKPSGM PYEQAMTTRV LKPLKLDHTW
451 *INVPKAEEAH* YAWGYRDGKA VRVSPGMLDA QAYGVKTNVQ DMANWVMANM
501 APENVADASL KQGIALAQSR YWRIGSMYQG LGWEMLNWPV EANTVVETSF
551 GNVALAPLPV AEVNPPAPPV KASWVHKTGS TGGFG**A**YVAF IPEKQIGIVM
601 LANTSYPNPA RVEAAYHILE ALQ (SEQ ID NO:8)

FIG._4C

```
   1  GACATCGTCC TGACCCAGAG CCCGGCAAGC CTGTCTGTTT CCCTGGGCCA
  51  GCGTGCCACT ATGTCCTGCA GAGCGGGTGA GTCTGTTGAC ATTTTCGGTG
 101  TCGGTTTTCT GCACTGGTAC CAACAGAAAC CGGGTCAGCC GCCAAAACTG
 151  CTGATCTATC GTGCTTCTAA CCTGGAGTCC GGCATCCCGG TACGTTTCTC
 201  CGGTACTGGC TCTGGTACTG ATTTTACCCT GATTATCGAC CCGGTGGAAG
 251  CAGACGATGT TGCCACCTAC TATTGCCAGC AGACCAACGA GGATCCGTAC
 301  ACCTTCGGTG GCGGTACTAA ACTGGAGATC AAAGGCGGTG GTGGTTCTGG
 351  TGGTGGTGGT AGCGGTGGCG GTGGTAGCGG TGGCGGTGGC AGCGGTGGTG
 401  GTGGCTCTGG TGGCGGTGGC TCTGAAGTGC AGCTGCAGCA GTCCGGTGCG
 451  GAGCTCGTTG AACCGGGCGC TTCTGTGAAA CTGTCTTGCA CTGCATCTGG
 501  TTTCAACATT AAGGACACCT ACATGCACTG GGTGAAACAA CGCCCGGAAC
 551  AGGGTCTGGA GTGGATCGGT CGCATCGATC CGGCTAACGG TAACAGCAAA
 601  TACGTGCCAA AATTCCAGGG TAAAGCAACC ATCACTGCTG ATACCTCCTC
 651  TAACACTGCT TACCTGCAGC TGACTTCCCT GACTAGCGAA GACACCGCGG
 701  TTTATTACTG CGCTCCGTTC GGCTACTATG TCAGCGATTA CGCAATGGCC
 751  TACTGGGGTC AGGGCACCTC TGTTACCGTT TCTAGCACAC CGGTGTCAGA
 801  AAAACAGCTG GCGGAGGTGG TCGCGAATAC GATTACCCCG CTGATGGCGG
 851  CCCAGTCTGT TCCAGGCATG GCGGTGGCCG TTATTTATCA GGGAAAACCG
 901  CACTATTACA CATTTGGCAA GGCCGATATC GCGGCGAATA AACCCGTTAC
 951  GCCTCAGACC CTGTTCGAGC TGGGTTCTAT AAGTAAAACC TTCACCGGCG
1001  TTTTAGGTGG GGATGCCATT GCTCGCGGTG AAATTTCGCT GGACGATGCG
1051  GTGACCAGAT ACTGGCCACA GCTGACGGGC AAGCAGTGGC AGGGTATTCG
1101  TATGCTGGAT CTCGCCACCT ACACCGCTGG CGGCCTGCCG CTACAGGTAC
1151  CGGATGAGGT CACGGATAAC GCCTCCCTGC TGCGCTTTTA TCAAAACTGG
1201  CAGCCGCAGT GGAAGCCTGG CACAACGCGT CTTTACGCCA ACGCCAGCAT
1251  CGGTCTTTTT GGTGCGCTGG CGGTCAAACC TTCTGGCATG CCCTATGAGC
1301  AGGCCATGAC GACGCGGGTC CTTAAGCCGC TCAAGCTGGA CCATACCTGG
1351  ATTAACGTGC CGAAAGCGGA AGAGGCGCAT TACGCCTGGG GCTATCGTGA
1401  CGGTAAAGCG GTGCGCGTTT CGCCGGGTAT GCTGGATGCA CAAGCCTATG
1451  GCGTGAAAAC CAACGTGCAG GATATGGCGA ACTGGGTCAT GGCAAACATG
1501  GCGCCGGAGA ACGTTGCTGA TGCCTCACTT AAGCAGGGCA TCGCGCTGGC
1551  GCAGTCGCGC TACTGGCGTA TCGGGTCAAT GTATCAGGGT CTGGGCTGGG
1601  AGATGCTCAA CTGGCCCGTG GAGGCCAACA CGGTGGTCGA GACGAGTTTT
1651  GGTAATGTAG CACTGGCGCC GTTGCCCGTG GCAGAAGTGA ATCCACCGGC
1701  TCCCCCGGTC AAAGCGTCCT GGGTCCATAA AACGGGCTCT ACTGGCGGGT
1751  TTGGCGCGTA CGTGGCCTTT ATTCCTGAAA AGCAGATCGG TATTGTGATG
1801  CTCGCGAATA CAAGCTATCC GAACCCGGCA CGCGTTGAGG CGGCATACCA
1851  TATCCTCGAG GCGCTACAG (SEQ ID NO:10)
```

FIG._4D

```
   1  AGGAATTATC ATATGAAATA CCTGCTGCCG ACCGCTGCTG CTGGTCTGCT
  51  GCTCCTCGCT GCCCAGCCGG CCATGGCCGA CATCGTCCTG ACCCAGAGCC
 101  CGGCAAGCCT GTCTGTTTCC CTGGGCCAGC GTGCCACTAT GTCCTGCAGA
 151  GCGGGTGAGT CTGTTGACAT TTTCGGTGTC GGTTTTCTGC ACTGGTACCA
 201  ACAGAAACCG GGTCAGCCGC CAAAACTGCT GATCTATCGT GCTTCTAACC
 251  TGGAGTCCGG CATCCCGGTA CGTTTCTCCG GTACTGGCTC TGGTACTGAT
 301  TTTACCCTGA TTATCGACCC GGTGGAAGCA GACGATGTTG CCACCTACTA
 351  TTGCCAGCAG ACCAACGAGG ATCCGTACAC CTTCGGTGGC GGTACTAAAC
 401  TGGAGATCAA AGGCGGTGGT GGTTCTGGTG GTGGTGGTAG CGGTGGCGGT
 451  GGTAGCGGTG GCGGTGGCAG CGGTGGTGGT GGCTCTGGTG GCGGTGGCTC
 501  TGAAGTGCAG CTGCAGCAGT CCGGTGCGGA GCTCGTTGAA CCGGGCGCTT
 551  CTGTGAAACT GTCTTGCACT GCATCTGGTT TCAACATTAA GGACACCTAC
 601  ATGCACTGGG TGAAACAACG CCCGGAACAG GGTCTGGAGT GGATCGGTCG
 651  CATCGATCCG GCTAACGGTA ACAGCAAATA CGTGCCAAAA TTCCAGGGTA
 701  AAGCAACCAT CACTGCTGAT ACCTCCTCTA ACACTGCTTA CCTGCAGCTG
 751  ACTTCCCTGA CTAGCGAAGA CACCGCGGTT TATTACTGCG CTCCGTTCGG
 801  CTACTATGTC AGCGATTACG CAATGGCCTA CTGGGGTCAG GGCACCTCTG
 851  TTACCGTTTC TAGCACACCG GTGTCAGAAA AACAGCTGGC GGAGGTGGTC
 901  GCGAATACGA TTACCCCGCT GATGGCGGCC CAGTCTGTTC CAGGCATGGC
 951  GGTGGCCGTT ATTTATCAGG GAAAACCGCA CTATTACACA TTTGGCAAGG
1001  CCGATATCGC GGCGAATAAA CCCGTTACGC CTCAGACCCT GTTCGAGCTG
1051  GGTTCTATAA GTAAAACCTT CACCGGCGTT TTAGGTGGGG ATGCCATTGC
1101  TCGCGGTGAA ATTTCGCTGG ACGATGCGGT GACCAGATAC TGGCCACAGC
1151  TGACGGGCAA GCAGTGGCAG GGTATTCGTA TGCTGGATCT CGCCACCTAC
1201  ACCGCTGGCG GCCTGCCGCT ACAGGTACCG GATGAGGTCA CGGATAACGC
1251  CTCCCTGCTG CGCTTTTATC AAAACTGGCA GCCGCAGTGG AAGCCTGGCA
1301  CAACGCGTCT TTACGCCAAC GCCAGCATCG GTCTTTTTGG TGCGCTGGCG
1351  GTCAAACCTT CTGGCATGCC CTATGAGCAG GCCATGACGA CGCGGGTCCT
1401  TAAGCCGCTC AAGCTGGACC ATACCTGGAT TAACGTGCCG AAAGCGGAAG
1451  AGGCGCATTA CGCCTGGGGC TATCGTGACG GTAAAGCGGT GCGCGTTTCG
1501  CCGGGTATGC TGGATGCACA AGCCTATGGC GTGAAAACCA ACGTGCAGGA
1551  TATGGCGAAC TGGGTCATGG CAAACATGGC GCCGGAGAAC GTTGCTGATG
1601  CCTCACTTAA GCAGGGCATC GCGCTGGCGC AGTCGCGCTA CTGGCGTATC
1651  GGGTCAATGT ATCAGGGTCT GGGCTGGGAG ATGCTCAACT GGCCCGTGGA
1701  GGCCAACACG GTGGTCGAGA CGAGTTTTGG TAATGTAGCA CTGGCGCCGT
1751  TGCCCGTGGC AGAAGTGAAT CCACCGGCTC CCCCGGTCAA AGCGTCCTGG
1801  GTCCATAAAA CGGGCTCTAC TGGCGGGTTT GGCGCGTACG TGGCCTTTAT
1851  TCCTGAAAAG CAGATCGGTA TTGTGATGCT CGCGAATACA AGCTATCCGA
1901  ACCCGGCACG CGTTGAGGCG GCATACCATA TCCTCGAGGC GCTACAGTAG
1951  GAATTCGAGC TCCGTCGACA AGCTTGCGGC CGCACTCGAG ATCAAACGGG
2001  CTAGCCAGCC AGAACTCGCC CCGGAAGACC CCGAGGATGT CGAGCACCAC
2051  CACCACCACC ACTGAGATCC GGCTGCTAAC AAAGCCCGAA AGGAAGCTGA
2101  GTTGGCTGCT GCCACCGCTG AGCAATAACT AGCATAACCC CTTGGGGCCT
2151  CTAAACGGGT CTTGAGGGGT TTTTTGCTGA AAGGAGGAAC TATATCCGGA
2201  TTGGCGAATG GGACGCGCCC TGTAGCGGCG CATTAAGCGC GGCGGGTGTG
2251  GTGGTTACGC GCAGCGTGAC CGCTACACTT GCCAGCGCCC TAGCGCCCGC
2301  TCCTTTCGCT TTCTTCCCTT CCTTTCTCGC CACGTTCGCC GGCTTTCCCC
```

FIG._4E-1

2351 GTCAAGCTCT AAATCGGGGG CTCCCTTTAG GGTTCCGATT TAGTGCTTTA
2401 CGGCACCTCG ACCCCAAAAA ACTTGATTAG GGTGATGGTT CACGTAGTGG
2451 GCCATCGCCC TGATAGACGG TTTTTCGCCC TTTGACGTTG GAGTCCACGT
2501 TCTTTAATAG TGGACTCTTG TTCCAAACTG GAACAACACT CAACCCTATC
2551 TCGGTCTATT CTTTTGATTT ATAAGGGATT TTGCCGATTT CGGCCTATTG
2601 GTTAAAAAAT GAGCTGATTT AACAAAAATT TAACGCGAAT TTTAACAAAA
2651 TATTAACGCT TACAATTTCC TGATGCGGTA TTTTCTCCTT ACGCATCTGT
2701 GCGGTATTTC ACACCGCATA TGGTGCACTC TCAGTACAAT CTGCTCTGAT
2751 GCCGCATAGT TAAGCCAGCC CCGACACCCG CCAACACCCG CTGACGCGCC
2801 CTGACGGGCT TGTCTGCTCC CGGCATCCGC TTACAGACAA GCTGTGACCG
2851 TCTCCGGGAG CTGCATGTGT CAGAGGTTTT CACCGTCATC ACCGAAACGC
2901 GCGAGACGAA AGGGCCTCGT GATACGCCTA TTTTTATAGG TTAATGTCAT
2951 GATAATAATG GTTTCTTAGA CGTCAGGTGG CACTTTTCGG GGAAATGTGC
3001 GCGGAACCCC TATTTGTTTA TTTTTCTAAA TACATTCAAA TATGTATCCG
3051 CTCATGAGAC AATAACCCTG TGGCAGCATC ACCCGACGCA CTTTGCGCCG
3101 AATAAATACC TGTGACGGAA GATCACTTCG CAGAATAAAT AAATCCTGGT
3151 GTCCCTGTTG ATACCGGGAA GCCCTGGGCC AACTTTTGGC GAAAATGAGA
3201 CGTTGATCGG CACGTAAGAG GTTCCAACTT TCACCATAAT GAAATAAGAT
3251 CACTACCGGG CGTATTTTTT GAGTTATCGA GATTTTCAGG AGCTAAGGAA
3301 GCTAAAATGG AGAAAAAAAT CACTGGATAT ACCACCGTTG ATATATCCCA
3351 ATGGCATCGT AAAGAACATT TTGAGGCATT TCAGTCAGTT GCTCAATGTA
3401 CCTATAACCA GACCGTTCAG CTGGATATTA CGGCCTTTTT AAAGACCGTA
3451 AAGAAAAATA AGCACAAGTT TTATCCGGCC TTTATTCACA TTCTTGCCCG
3501 CCTGATGAAT GCTCATCCGG AATTCCGTAT GGCAATGAAA GACGGTGAGC
3551 TGGTGATATG GGATAGTGTT CACCCTTGTT ACACCGTTTT CCATGAGCAA
3601 ACTGAAACGT TTTCATCGCT CTGGAGTGAA TACCACGACG ATTTCCGGCA
3651 GTTTCTACAC ATATATTCGC AAGATGTGGC GTGTTACGGT GAAAACCTGG
3701 CCTATTTCCC TAAAGGGTTT ATTGAGAATA TGTTTTTCGT CTCAGCCAAT
3751 CCCTGGGTGA GTTTCACCAG TTTTGATTTA AACGTGGCCA ATATGGACAA
3801 CTTCTTCGCC CCCGTTTTCA CGATGGGCAA ATATTATACG CAAGGCGACA
3851 AGGTGCTGAT GCCGCTGGCG ATTCAGGTTC ATCATGCCGT CTGTGATGGC
3901 TTCCATGTCG GCAGAATGCT TAATGAATTA CAACAGTACT GCGATGAGTG
3951 GCAGGGCGGG GCGTAAAGAC AGATCGCTGA GATAGGTGCC TCACTGATTA
4001 AGCATTGGTA ACTGTCAGAC CAAGTTTACT CATATATACT TTAGATTGAT
4051 TTAAAACTTC ATTTTTAATT TAAAAGGATC TAGGTGAAGA TCCTTTTTGA
4101 TAATCTCATG ACCAAAATCC CTTAACGTGA GTTTTCGTTC CACTGAGCGT
4151 CAGACCCCGT AGAAAAGATC AAAGGATCTT CTTGAGATCC TTTTTTTCTG
4201 CGCGTAATCT GCTGCTTGCA AACAAAAAAA CCACCGCTAC CAGCGGTGGT
4251 TTGTTTGCCG GATCAAGAGC TACCAACTCT TTTTCCGAAG GTAACTGGCT
4301 TCAGCAGAGC GCAGATACCA AATACTGTTC TTCTAGTGTA GCCGTAGTTA
4351 GGCCACCACT TCAAGAACTC TGTAGCACCG CCTACATACC TCGCTCTGCT
4401 AATCCTGTTA CCAGTGGCTG CTGCCAGTGG CGATAAGTCG TGTCTTACCG
4451 GGTTGGACTC AAGACGATAG TTACCGGATA AGGCGCAGCG GTCGGGCTGA
4501 ACGGGGGGTT CGTGCACACA GCCCAGCTTG GAGCGAACGA CCTACACCGA
4551 ACTGAGATAC CTACAGCGTG AGCTATGAGA AAGCGCCACG CTTCCCGAAG
4601 GGAGAAAGGC GGACAGGTAT CCGGTAAGCG GCAGGGTCGG AACAGGAGAG
4651 CGCACGAGGG AGCTTCCAGG GGGAAACGCC TGGTATCTTT ATAGTCCTGT

FIG._4E-2

```
4701  CGGGTTTCGC CACCTCTGAC TTGAGCGTCG ATTTTTGTGA TGCTCGTCAG
4751  GGGGGCGGAG CCTATGGAAA AACGCCAGCA ACGCGGCCTT TTTACGGTTC
4801  CTGGCCTTTT GCTGGCCTTT TGCTCACATG TTCTTTCCTG CGTTATCCCC
4851  TGATTCTGTG GATAACCGTA TTACCGCCTT TGAGTGAGCT GATACCGCTC
4901  GCCGCAGCCG AACGACCGAG CGCAGCGAGT CAGTGAGCGA GGAAGCGGAA
4951  GAGCGCCCAA TACGCAAACC GCCTCTCCCC GCGCGTTGGC CGATTCATTA
5001  ATGCAGCTGG CACGACAGGT TTCCCGACTG GAAAGCGGGC AGTGAGCGCA
5051  ACGCAATTAA TGTGAGTTAG CTCACTCATT AGGCACCCCA GGCTTTACAC
5101  TTTATGCTTC CGGCTCGTAT GTTGTGTGGA ATTGTGAGCG GATAACAATT
5151  TCACACAGGA AACAGCTATG ACCATGATTA CGCCAAGCTA TTTAGGTGAC
5201  ACTATAGAAT ACTCAAGCTT TCTAGATTAA GG
```

FIG._4E-3

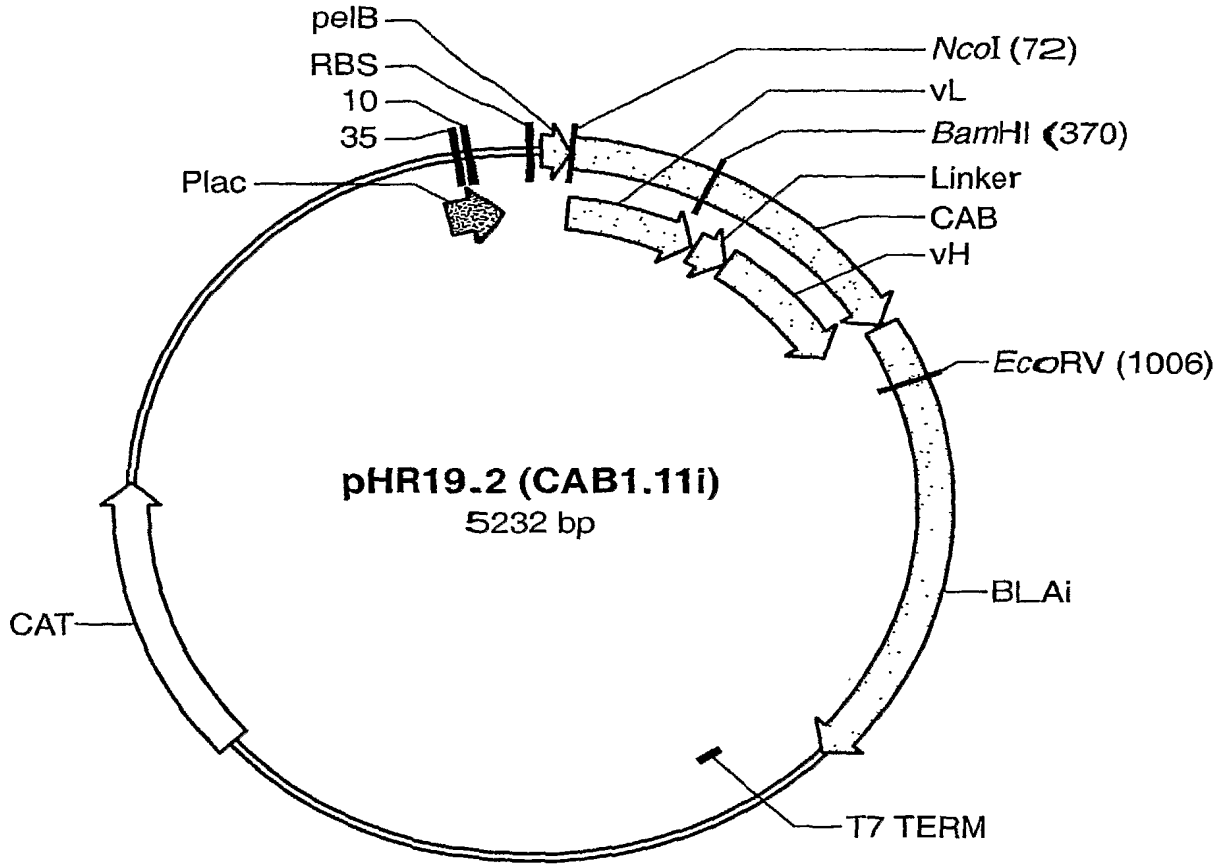

pelB
RBS
10
35
Plac
NcoI (72)
vL
BamHI (370)
Linker
CAB
vH
EcoRV (1006)
pHR19.2 (CAB1.11i)
5232 bp
BL_Ai
CAT
T7 TERM

FIG._5

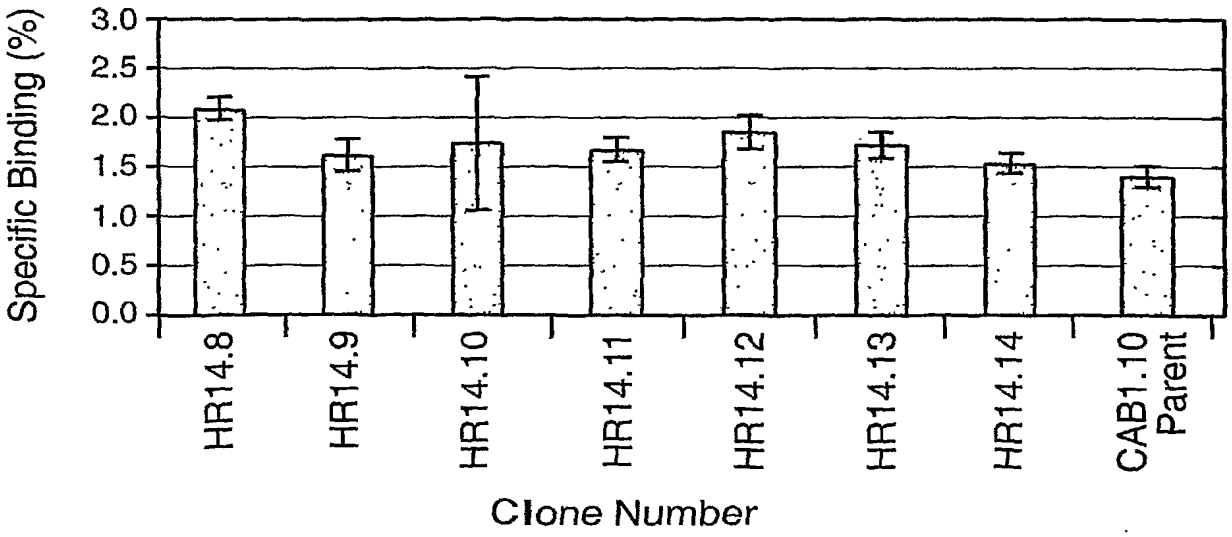

Specific Binding (%)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
HR14.8
HR14.9
HR14.10
HR14.11
HR14.12
HR14.13
HR14.14
CAB1.10 Parent
Clone Number

FIG._6

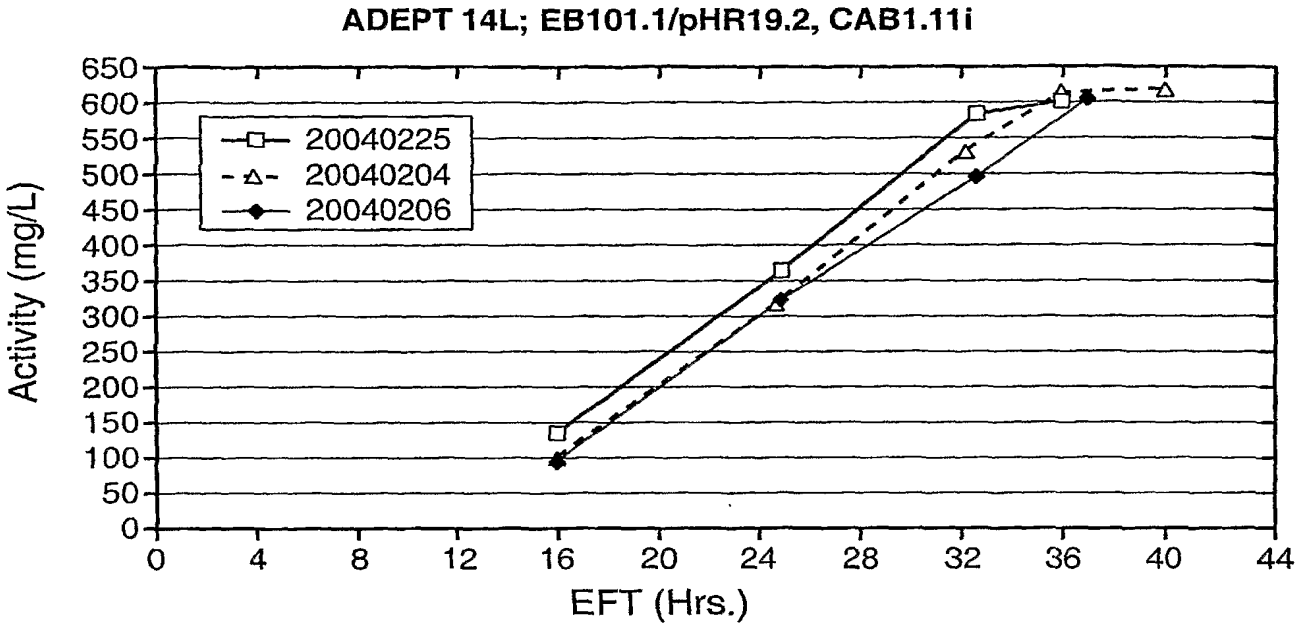

ADEPT 14L; EB101.1/pHR19.2, CAB1.11i
Activity (mg/L)
650
600
550
500
450
400
350
300
250
200
150
100
50
0
20040225
20040204
20040206
0
4
8
12
16
20
24
28
32
36
40
44
EFT (Hrs.)

FIG._7

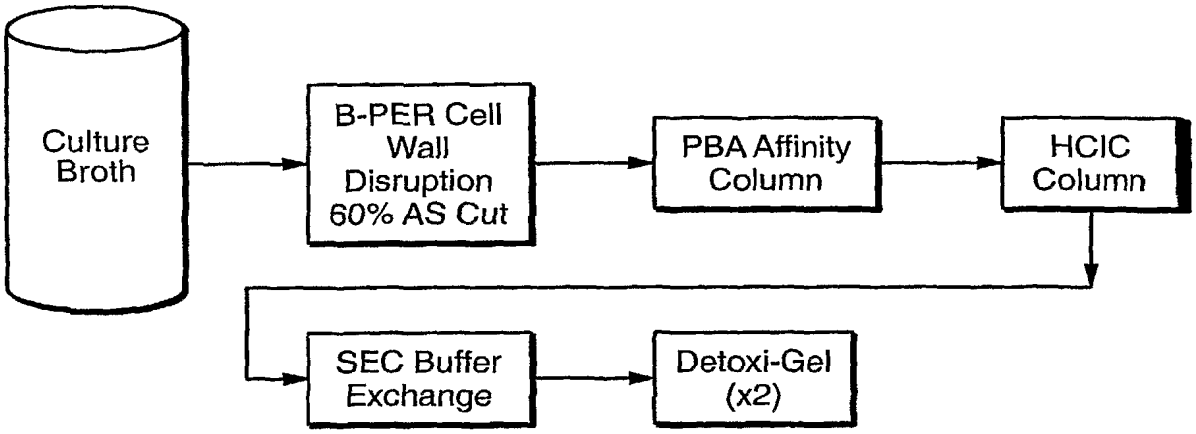

Culture Broth
B-PER Cell Wall Disruption 60% AS Cut
PBA Affinity Column
HCIC Column
SEC Buffer Exchange
Detoxi-Gel (x2)

FIG._8

Lane 1: Molecular Weight Standard; Lanes 3-5: Unrelated Proteins; Lane 6: CAB1.11i.

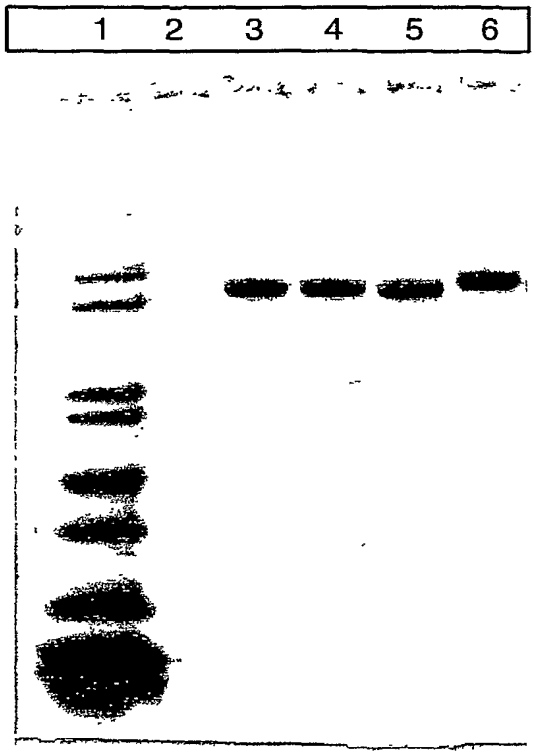


FIG._9

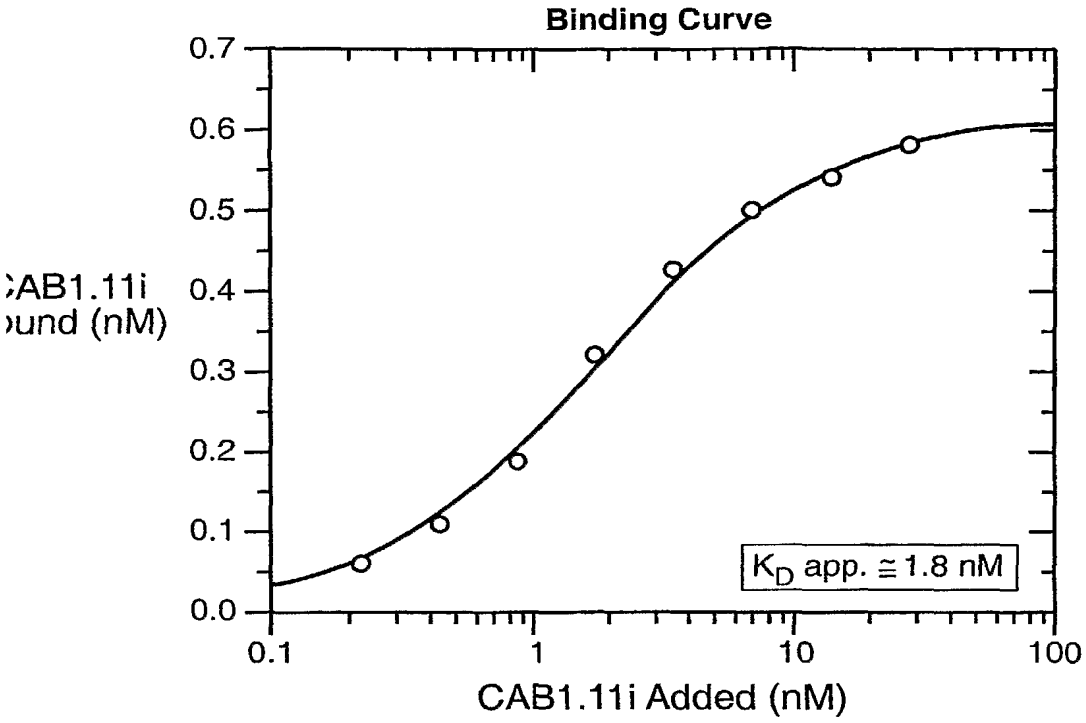


FIG._10A

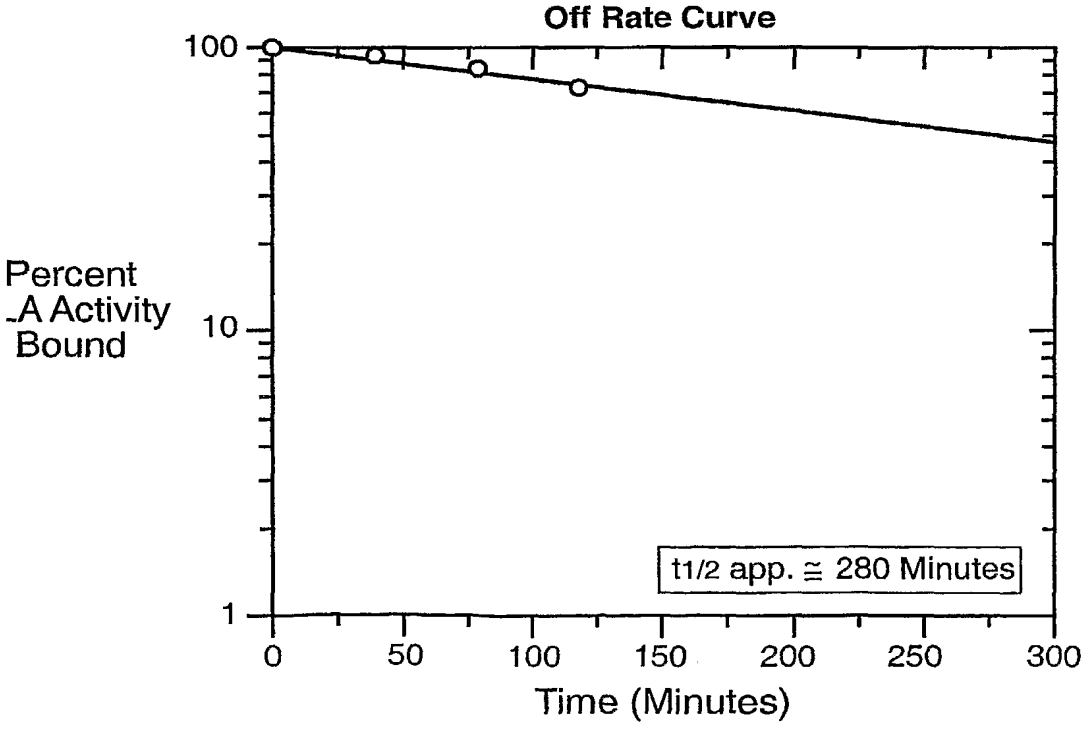


FIG._10B

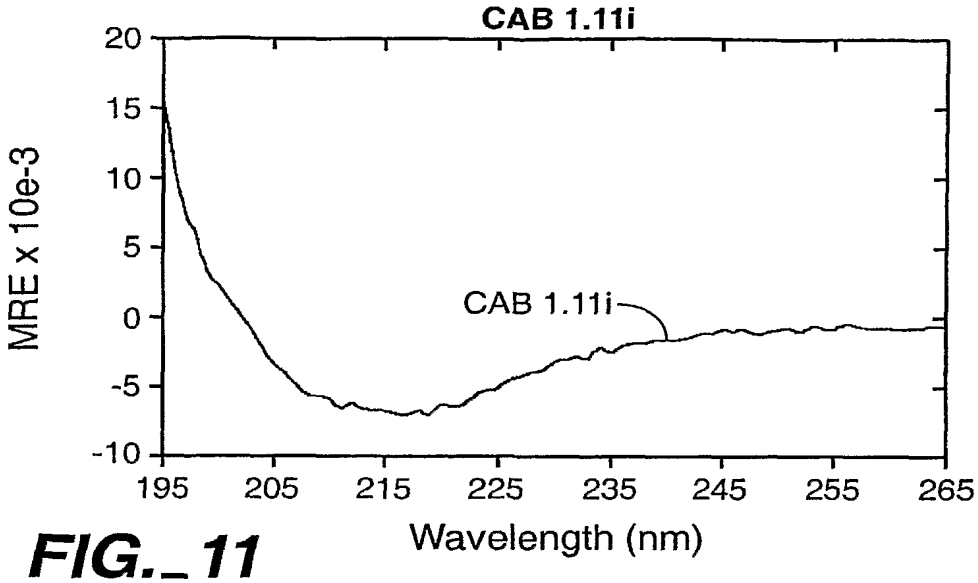

CAB 1.11i
MRE x 10e-3
20
15
10
5
0
-5
-10
195
205
215
225
235
245
255
265
CAB 1.11i
Wavelength (nm)

FIG._11

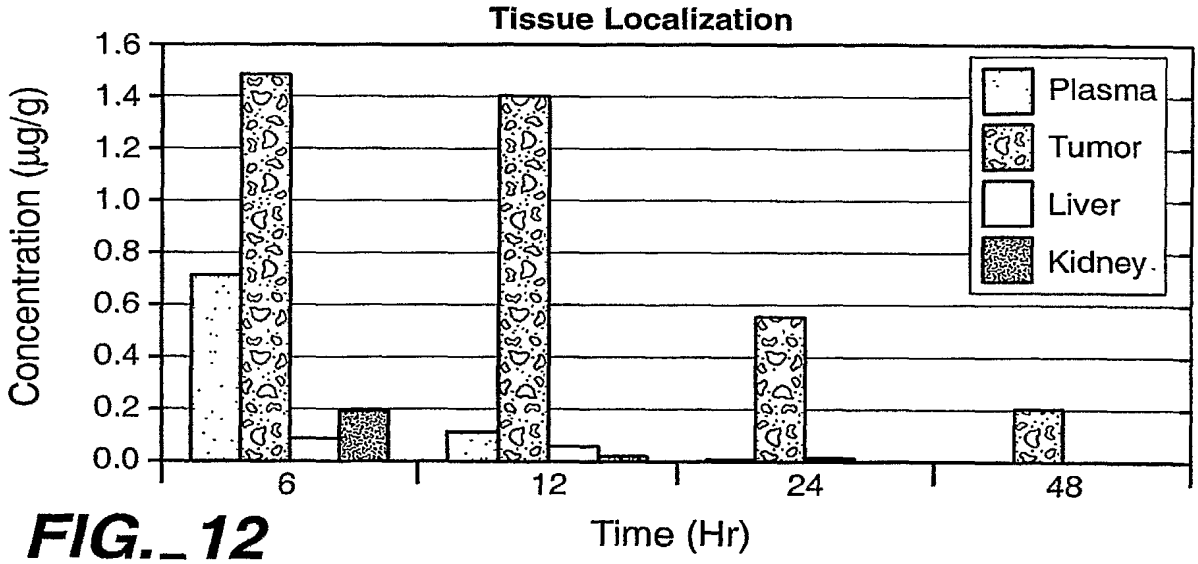

Tissue Localization
Concentration (µg/g)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
6
12
24
48
Time (Hr)
Plasma
Tumor
Liver
Kidney

FIG._12

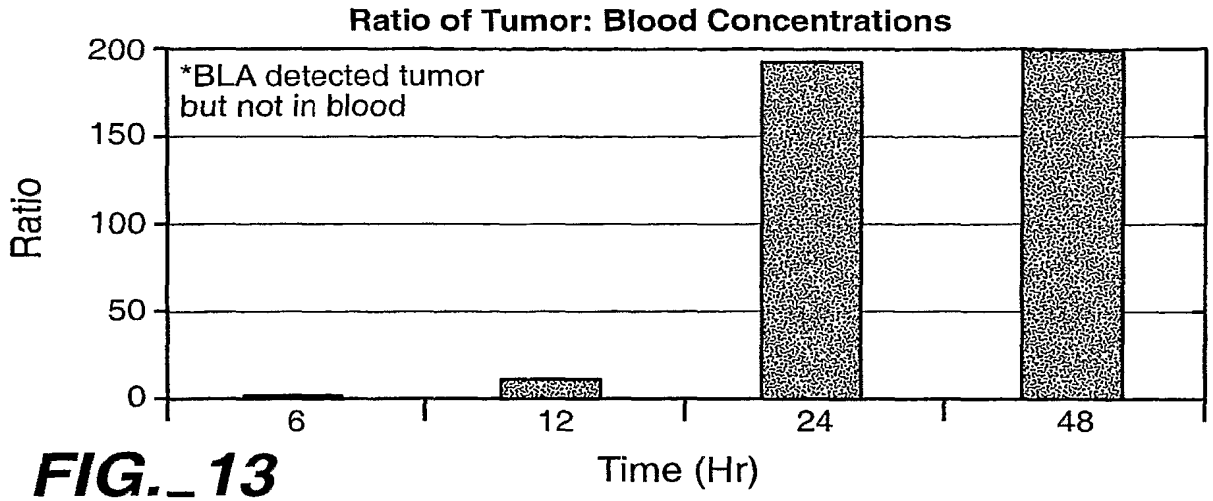

Ratio of Tumor: Blood Concentrations
*BLA detected tumor
but not in blood
Ratio
200
150
100
50
0
6
12
24
48
Time (Hr)

FIG._13

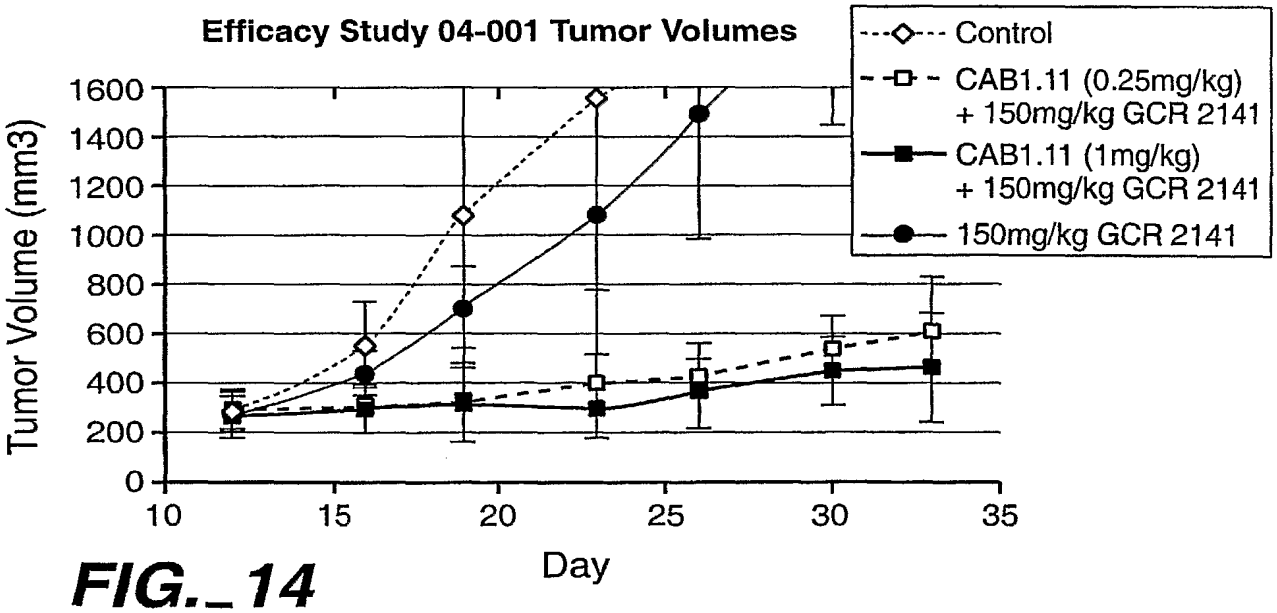

Efficacy Study 04-001 Tumor Volumes
Control
CAB1.11 (0.25mg/kg)
+ 150mg/kg GCR 2141
CAB1.11 (1mg/kg)
+ 150mg/kg GCR 2141
150mg/kg GCR 2141
Tumor Volume (mm3)
1600
1400
1200
1000
800
600
400
200
0
10
15
20
25
30
35
Day

FIG._14

FIG._15A

Case ID	ASM	Sample ID	Sample Pathology
CI0000000255	DF5	FR00005C7B	Adenocarcinoma of lung
CI0000005496	FF5	FR5B337147	Adenocarcinoma of lung
CI0000011577	FF1	FR5B34059F	Adenocarcinoma of lung
CI7000000241	AF4	FR00033A78	Adenocarcinoma of lung
CI0000007518	AF5	FR0001FD15	Carcinoma of lung, squamous cell
CI0000008475	HF4	FR65EE0784	Adenocarcinoma of colon, metastatic
CI0000015252	FF2	FR5B342166	Adenocarcinoma of colon

FIG._15B

Case Diagnosis	Tissue of Origin/Site of Finding	H/E
Adenocarcinoma of lung Grade: AJCC G3: Poorly differentiated Stage: IIIA	Lung/Lung	4X 20X
Adenocarcinoma of lung Grade: AJCC G3: Poorly differentiated Stage: IIIB	Lung/Lung	4X 20X
Adenocarcinoma of lung Grade: AJCC G2: Moderately differentiated Stage: IIIA	Lung/Lung	4X 20X
Adenocarcinoma of lung Grade: AJCC G2: Moderately differentiated Stage: IIIA	Lung/Lung	4X 20X
Carcinoma of lung, squamous cell Grade: AJCC G3: Poorly differentiated Stage: IIIA	Lung/Lung	4X 20X
Adenocarcinoma of colon, metastatic Grade: Not Reported Stage: IV	Colon/Liver	4X 20X
Adenocarcinoma of colon Grade: AJCC G3: Poorly differentiated Stage: IIIB	Cecum/Cecum	4X 20X

FIG._15C

Anti-Human Cytokeratin AE1/AE3	CAB/GCR3708 (0.2ug/ml)
Immunogencity: Tumor (100%, Variable to 3+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF00029758*	Immunogencity: Tumor (100%, Variable to 3+ Cyto) Mixed inflammatory cells (Variable to 1+ Cyto) Specificity: High 4x 20x *SF00029756*
	Immunogencity: Tumor (15%, Variable to 3+ Cyto) Intra-alveolar macrophages (Variable to 2+ Cyto) Mixed inflammatory cells (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002975B*
	Immunogencity: Tumor (100%, 2+ Cyto) Cellular stroma (1+ Cyto) Chronic inflammatory cells (Variable to 1+ Cyto) Specificity: High 4x 20x *SF0002977F*
	Immunogencity: Tumor (75%, Variable to 3+ Cyto) Cellular stroma (Variable to 2+ Cyto) Necrosis (Variable to 2+ EC) Intra-alveolar macrophages (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002978B*
	Immunogencity: Tumor (100%, 3+ Cyto) Fibrotic stroma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF0002975F*
Immunogencity: Tumor (98%, Variable to 3+ Mem, Variable to 3+ Cyto) Fibrotic stroma (Variable to 1+ Cyto) Normal liver parenchyma (2+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF0002976A*	Immunogencity: Tumor (95%, Variable to 3+ Mem, Variable to 3+ Cyto) Fibrotic stroma (Variable to 1+ Cyto) Normal liver parenchyma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF00029768* Normal liver parenchyma shows positive staining (1+)
	Immunogencity: Tumor (85%, Variable to 3+ Mem, Variable to 3+ Cyto) Cellular stroma (1+ Cyto) Normal muscle (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029783*

FIG._15D

CAB/GCR5517 (0.2ug/ml)	CAB/GCR6798 (0.2ug/ml)
Immunogencity: Tumor (100%, Variable to 3+ Cyto) Mixed inflammatory cells (Variable to 3+ Cyto) Necrosis (Variable to 2+ EC) Specificity: High 4x 20x *SF00029757*	Immunogencity: Tumor (100%, Variable to 3+ Cyto) Mixed inflammatory cells (Variable to 1+ Cyto) Specificity: High 4x 20x *SF00029753*
Immunogencity: Tumor (40%, Variable to 3+ Cyto) Intra-alveolar macrophages (Variable to 2+ Cyto) Mixed inflammatory cells (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002975C*	Immunogencity: Tumor (10%, Variable to 2+ Cyto) Intra-alveolar macrophages (Variable to 2+ Cyto) Mixed inflammatory cells (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029759*
Immunogencity: Tumor (100%, 2+ Cyto) Cellular stroma (1+ Cyto) Chronic inflammatory cells (Variable to 1+ Cyto) Specificity: High 4x 20x *SF00029780*	Immunogencity: Tumor (100%, 2+ Cyto) Cellular stroma (1+ Cyto) Chronic inflammatory cells (Variable to 1+ Cyto) Specificity: High 4x 20x *SF0002977D*
Immunogencity: Tumor (85%, Variable to 3+ Cyto) Cellular stroma (Variable to 2+ Cyto) Necrosis (Variable to 2+ EC) Intra-alveolar macrophages (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002978C*	Immunogencity: Tumor (75%, Variable to 3+ Cyto) Cellular stroma (Variable to 2+ Cyto) Necrosis (Variable to 2+ EC) Intra-alveolar macrophages (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029789*
Immunogencity: Tumor (100%, 3+ Cyto) Fibrotic stroma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF00029760*	Immunogencity: Tumor (100%, 3+ Cyto) Fibrotic stroma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF0002975D*
Immunogencity: Tumor (98%, Variable to 3+ Mem, Variable to 3+ Cyto) Fibrotic stroma (Variable to 1+ Cyto) Normal liver parenchyma (2+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF00029769*	Immunogencity: Tumor (95%, Variable to 3+ Mem, Variable to 3+ Cyto) Fibrotic stroma (Variable to 1+ Cyto) Normal liver parenchyma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF00029765* Normal liver parenchyma shows positive staining (1+)
Immunogencity: Tumor (85%, Variable to 3+ Mem, Variable to 3+ Cyto) Cellular stroma (1+ Cyto) Normal muscle (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029784*	Immunogencity: Tumor (95%, Variable to 3+ Mem, Variable to 3+ Cyto) Cellular stroma (1+ Cyto) Normal muscle (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029781*

FIG._15E

CAB/GCR8886 (0.196ug/ml)	No Antibody Control (Prediluted)
Immunogencity: Tumor (100%, Variable to 3+ Cyto) Mixed inflammatory cells (Variable to 1+ Cyto) Specificity: High 4x 20x *SF00029754*	Immunogencity: N/A Specificity: Unknown *SF00029755*
Immunogencity: Tumor (10%, Variable to 2+ Cyto) Intra-alveolar macrophages (Variable to 2+ Cyto) Mixed inflammatory cells (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002975A*	
Immunogencity: Tumor (100%, 2+ Cyto) Cellular stroma (1+ Cyto) Chronic inflammatory cells (Variable to 1+ Cyto) Specificity: High 4x 20x *SF0002977E*	
Immunogencity: Tumor (75%, Variable to 3+ Cyto) Cellular stroma (Variable to 2+ Cyto) Necrosis (Variable to 2+ EC) Intra-alveolar macrophages (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002978A*	
Immunogencity: Tumor (100%, 3+ Cyto) Fibrotic stroma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF0002975E*	
Immunogencity: Tumor (95%, Variable to 3+ Mem, Variable to 3+ Cyto) Fibrotic stroma (Variable to 1+ Cyto) Normal liver parenchyma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF00029766* Normal liver parenchyma shows positive staining (1+)	Immunogencity: N/A Specificity: Unknown *SF00029767*
Immunogencity: Tumor (95%, Variable to 3+ Mem, Variable to 3+ Cyto) Cellular stroma (1+ Cyto) Normal muscle (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029782*	

CI0000017970	HF1	FR65EE7B3D	Adenocarcinoma of colon
CI0000010013	AF2	FR00028F2E	Adenocarcinoma of pancreas, metastatic
CI0000009651	AF1	FR0002B111	Adenocarcinoma of pancreas, ductal
CI0000008690	CF4	FR00027B0E	Adenocarcinoma of pancreas, ductal
CI0000007678	AF3	FR0002575B	Adenocarcinoma of pancreas, ductal
CI0000009736	AF2	FR0002BAB4	Adenocarcinoma of pancreas, ductal

FIG._15F

Adenocarcinoma of colon Grade: AJCC G3: Moderately differentiated Stage: IIIC	Colon/Colon	4X 20X
Adenocarcinoma of pancreas, metastatic Grade: Not Reported Stage: IV	Pancreas/Omentum	4X 20X
Adenocarcinoma of pancreas, ductal Grade: AJCC G2: Moderately differentiated Stage: IIB	Pancreas/Pancreas	4X 20X
Adenocarcinoma of pancreas, ductal Grade: AJCC G1: Well differentiated Stage: IIA	Pancreas/Pancreas	4X 20X
Adenocarcinoma of pancreas, ductal Grade: AJCC G2: Moderately differentiated Stage: III	Pancreas/Pancreas	4X 20X
Adenocarcinoma of pancreas, ductal Grade: AJCC G2: Moderately differentiated Stage: IIB	Pancreas/Pancreas	4X 20X

FIG._15G

	Immunogencity: Tumor (100%, 3+ Cyto) Cellular stroma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF00029787*
Immunogencity: Tumor (100%, 3+ Cyto) Fibroadipose tissue (Variable to 1+ Cyto) Specificity: High 4x 20x *SF0002977C*	Immunogencity: Tumor (100%, 3+ Cyto) Fibroadipose tissue (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002977A*
	Immunogencity: Tumor (100%, 3+ Cyto) Desmoplastic stroma (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029771*
	Immunogencity: Tumor (100%, 3+ Cyto) Myxoid stroma (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002976D*
	Immunogencity: Tumor (85%, Variable to 3+ Cyto) Cellular stroma (Variable to 1+ Cyto) Chronic pancreatitis (Variable to 1+ Cyto) Specificity: High 4x 20x *SF00029763*
	Immunogencity: Tumor (100%, 3+ Cyto) Chronic pancreatitis (Variable to 2+ Cyto) Fibrotic stroma (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029775*

FIG._15H

Immunogencity: Tumor (100%, 3+ Cyto) Cellular stroma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x SF00029788	Immunogencity: Tumor (100%, 3+ Cyto) Cellular stroma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x SF00029785
Immunogencity: Tumor (100%, 3+ Cyto) Fibroadipose tissue (Variable to 2+ Cyto) Specificity: High 4x 20x SF0002977B	Immunogencity: Tumor (100%, 3+ Cyto) Fibroadipose tissue (Variable to 2+ Cyto) Specificity: High 4x 20x SF00029777
Immunogencity: Tumor (100%, 3+ Cyto) Desmoplastic stroma (Variable to 2+ Cyto) Specificity: High 4x 20x SF00029772	Immunogencity: Tumor (100%, 3+ Cyto) Desmoplastic stroma (Variable to 2+ Cyto) Specificity: High 4x 20x SF00029770
Immunogencity: Tumor (100%, 3+ Cyto) Myxoid stroma (Variable to 2+ Cyto) Specificity: High 4x 20x SF0002976E	Immunogencity: Tumor (100%, 3+ Cyto) Myxoid stroma (Variable to 2+ Cyto) Specificity: High 4x 20x SF0002976B
Immunogencity: Tumor (85%, Variable to 3+ Cyto) Cellular stroma (Variable to 1+ Cyto) Chronic pancreatitis (Variable to 1+ Cyto) Specificity: High 4x 20x SF00029764	Immunogencity: Tumor (85%, Variable to 3+ Cyto) Cellular stroma (Variable to 1+ Cyto) Chronic pancreatitis (Variable to 1+ Cyto) Specificity: High 4x 20x SF00029761
Immunogencity: Tumor (100%, 3+ Cyto) Chronic pancreatitis (Variable to 2+ Cyto) Fibrotic stroma (Variable to 2+ Cyto) Specificity: High 4x 20x SF00029776	Immunogencity: Tumor (100%, 3+ Cyto) Chronic pancreatitis (Variable to 1+ Cyto) Fibrotic stroma (Variable to 1+ Cyto) Specificity: High 4x 20x SF00029773

FIG._15I

Immunogencity: Tumor (100%, 3+ Cyto) Cellular stroma (1+ Cyto) Necrosis (Variable to 3+ EC) Specificity: High 4x 20x *SF00029786*	
Immunogencity: Tumor (100%, 3+ Cyto) Fibroadipose tissue (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029778*	Immunogencity: N/A Specificity: N/A *SF00029779*
Immunogencity: Tumor (100%, 3+ Cyto) Desmoplastic stroma (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002976F*	
Immunogencity: Tumor (100%, 3+ Cyto) Myxoid stroma (Variable to 2+ Cyto) Specificity: High 4x 20x *SF0002976C*	
Immunogencity: Tumor (85%, Variable to 3+ Cyto) Cellular stroma (Variable to 1+ Cyto) Chronic pancreatitis (Variable to 1+ Cyto) Specificity: High 4x 20x *SF00029762*	
Immunogencity: Tumor (100%, 3+ Cyto) Chronic pancreatitis (Variable to 2+ Cyto) Fibrotic stroma (Variable to 2+ Cyto) Specificity: High 4x 20x *SF00029774*	

FIG._15J

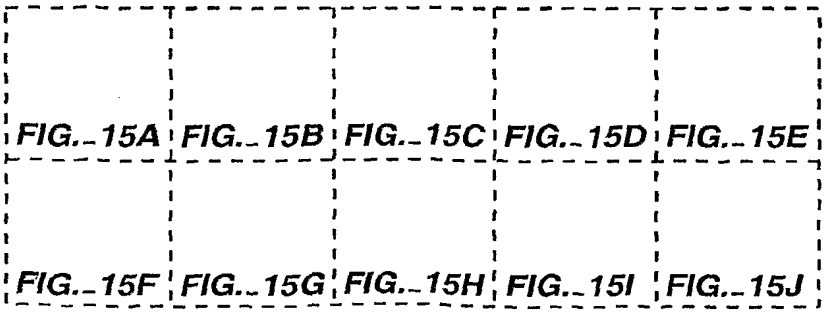


FIG._15

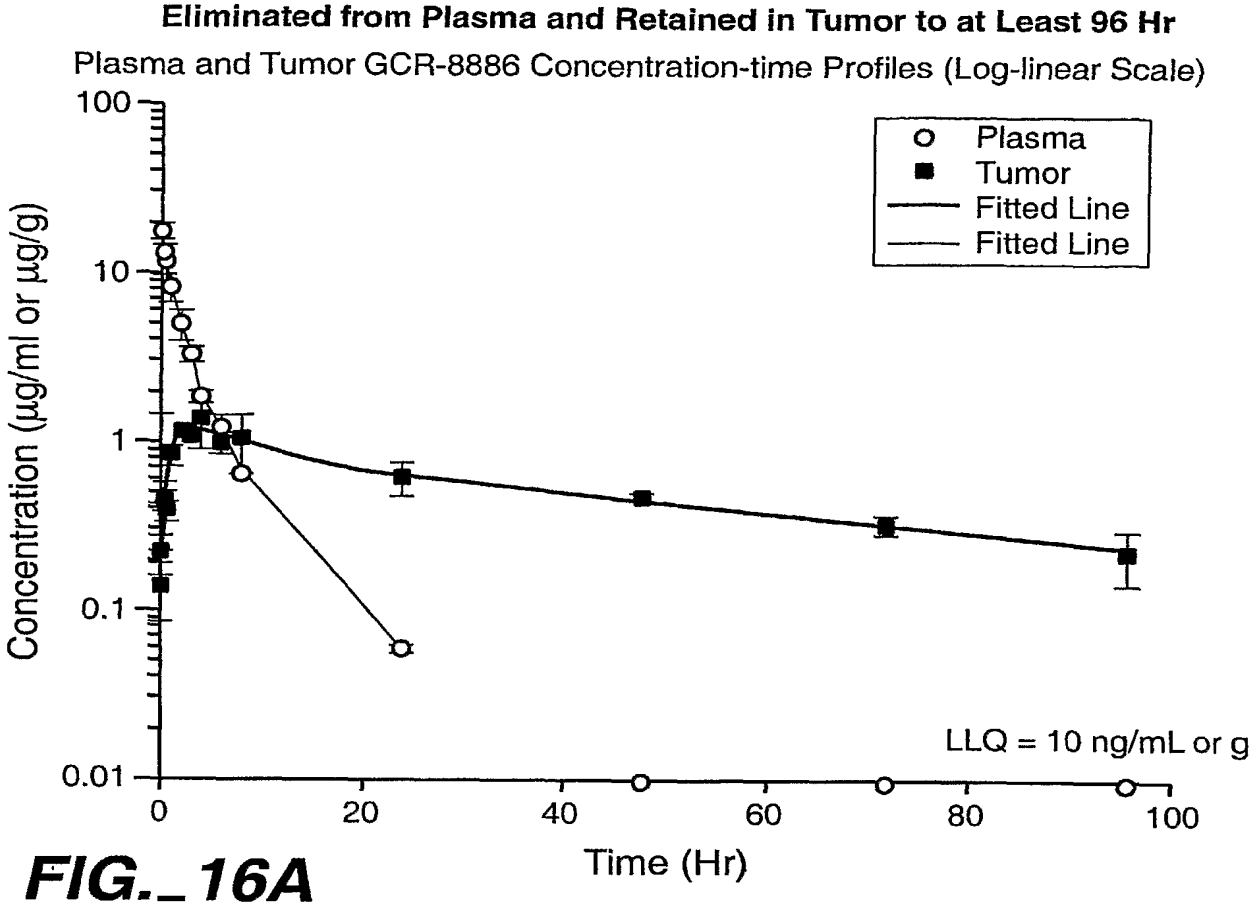

Eliminated from Plasma and Retained in Tumor to at Least 96 Hr
Plasma and Tumor GCR-8886 Concentration-time Profiles (Log-linear Scale)
Plasma
Tumor
Fitted Line
Fitted Line
Concentration (µg/ml or µg/g)
100
10
1
0.1
0.01
LLQ = 10 ng/mL or g
0
20
40
60
80
100
Time (Hr)

FIG._16A

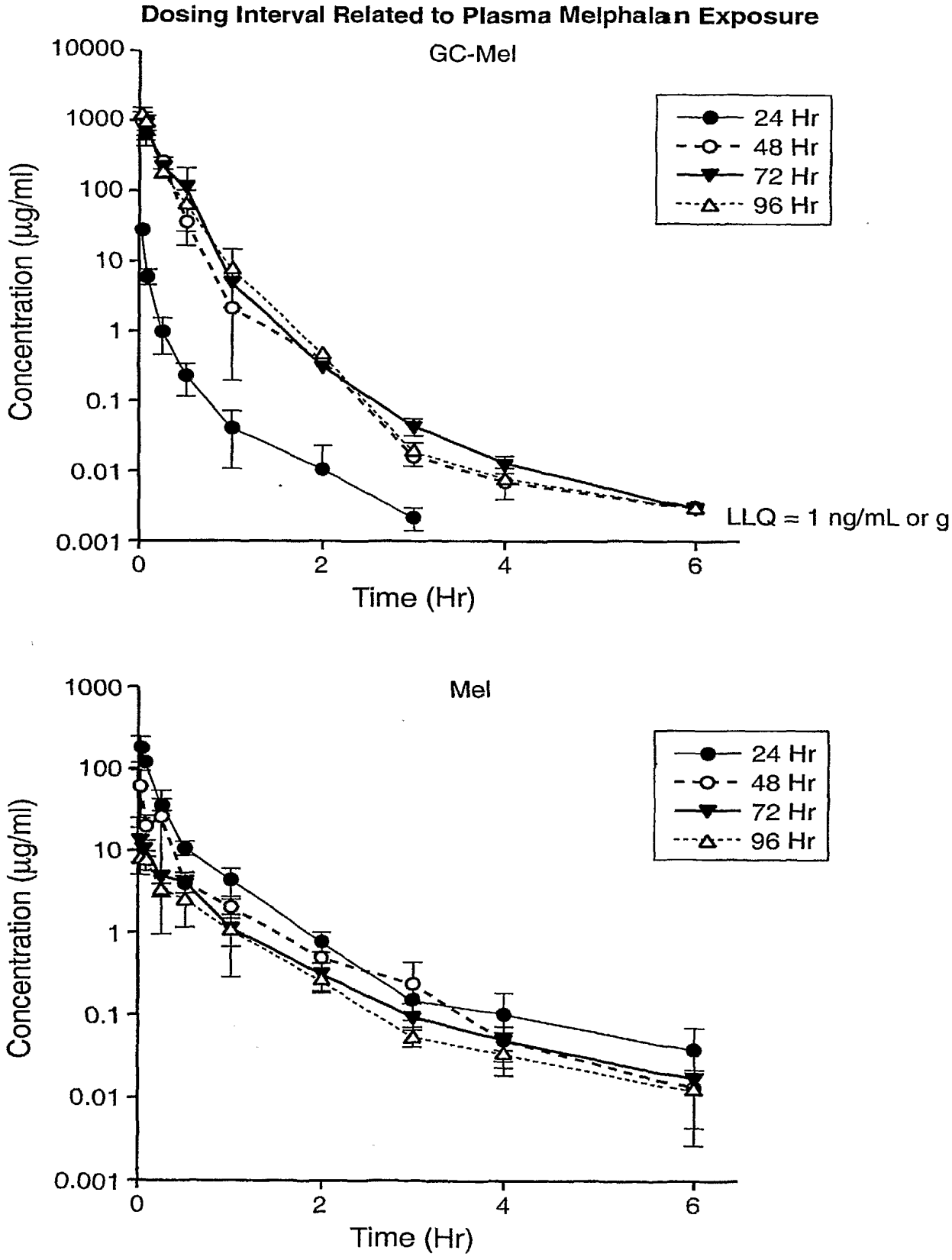

Dosing Interval Related to Plasma Melphalan Exposure
GC-Mel
Concentration (µg/ml)
10000
1000
100
10
1
0.1
0.01
0.001
0
2
4
6
Time (Hr)
24 Hr
48 Hr
72 Hr
96 Hr
LLQ = 1 ng/mL or g
Mel
Concentration (µg/ml)
1000
100
10
1
0.1
0.01
0.001
0
2
4
6
Time (Hr)
24 Hr
48 Hr
72 Hr
96 Hr

FIG._16B-1

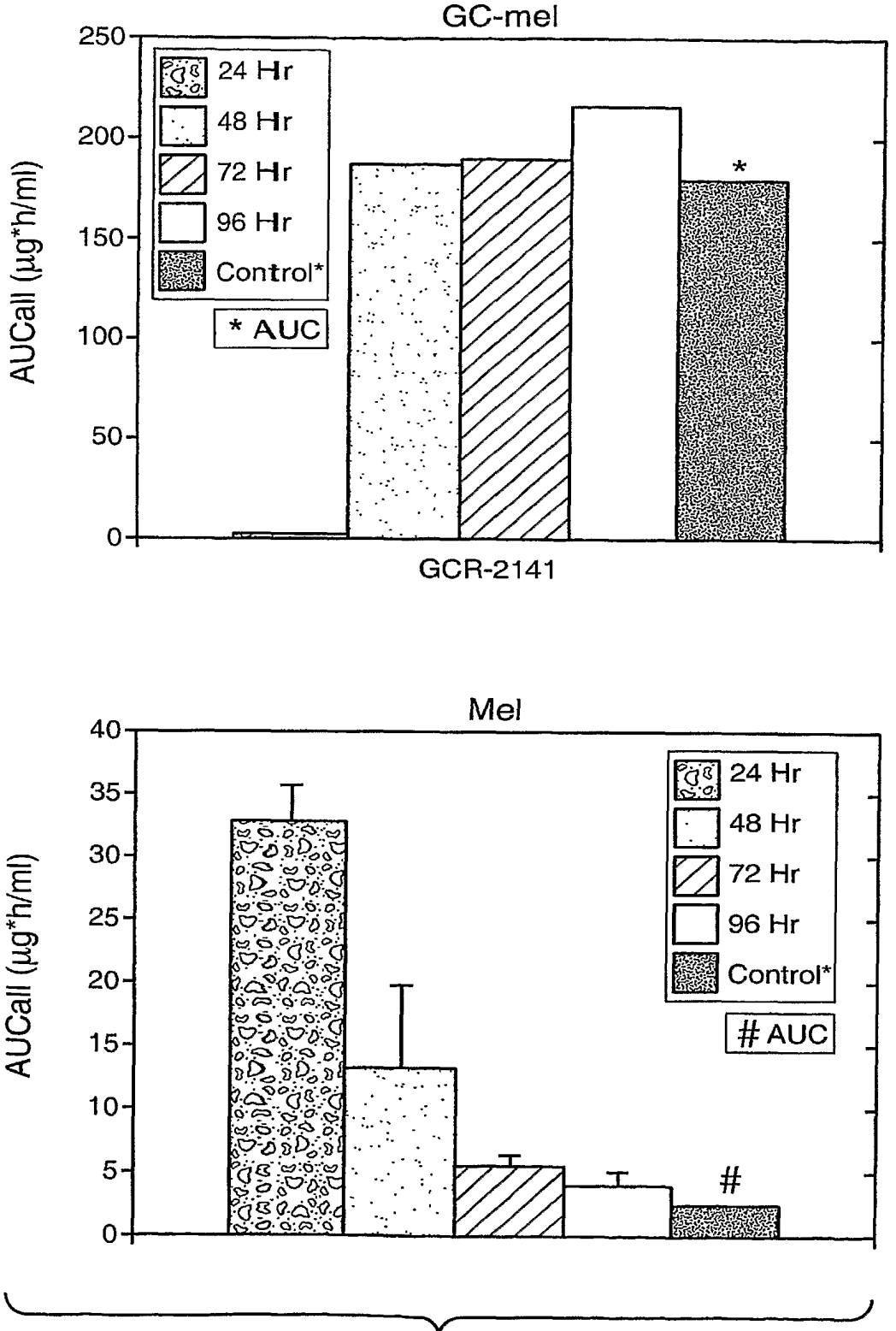

Dosing Interval Related to Plasma Melphalan Exposure
GC-mel
AUCall (µg*h/ml)
250
200
150
100
50
0
24 Hr
48 Hr
72 Hr
96 Hr
Control*
* AUC
*
GCR-2141
Mel
AUCall (µg*h/ml)
40
35
30
25
20
15
10
5
0
24 Hr
48 Hr
72 Hr
96 Hr
Control*
AUC
#

FIG._16B-2

Plasma and Kidney Exposure to is Decreased with Increased Interval Between GCR CAB1.11i and GCR GC-mel Administration

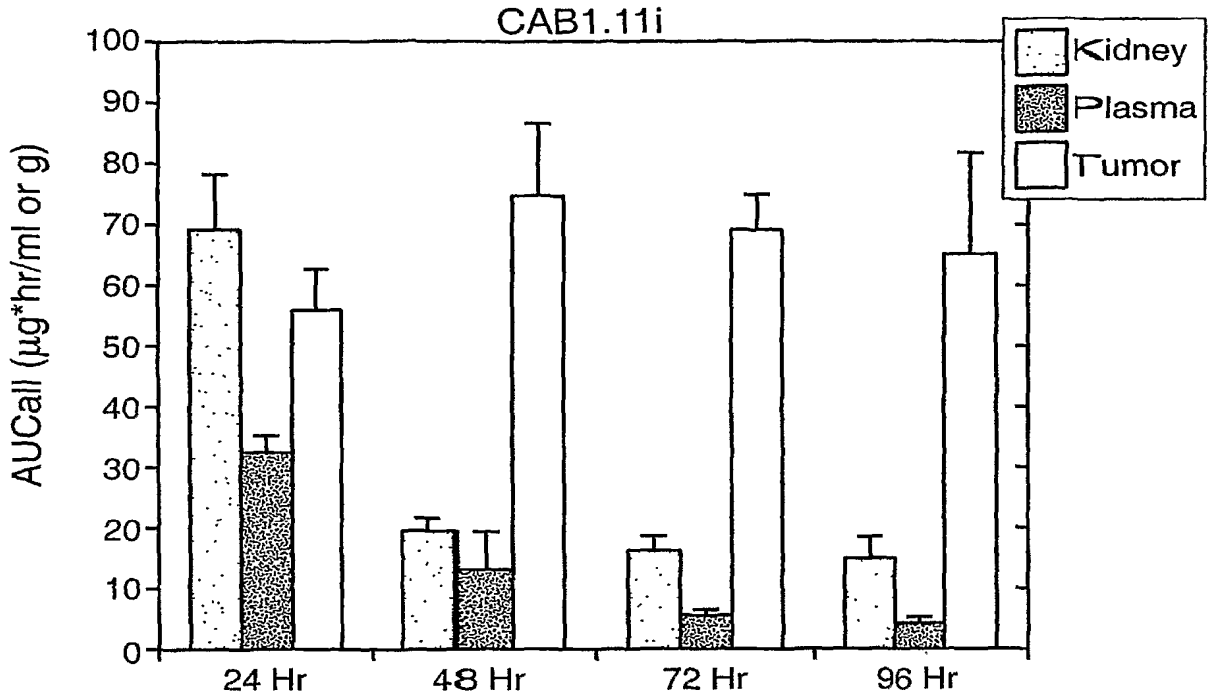
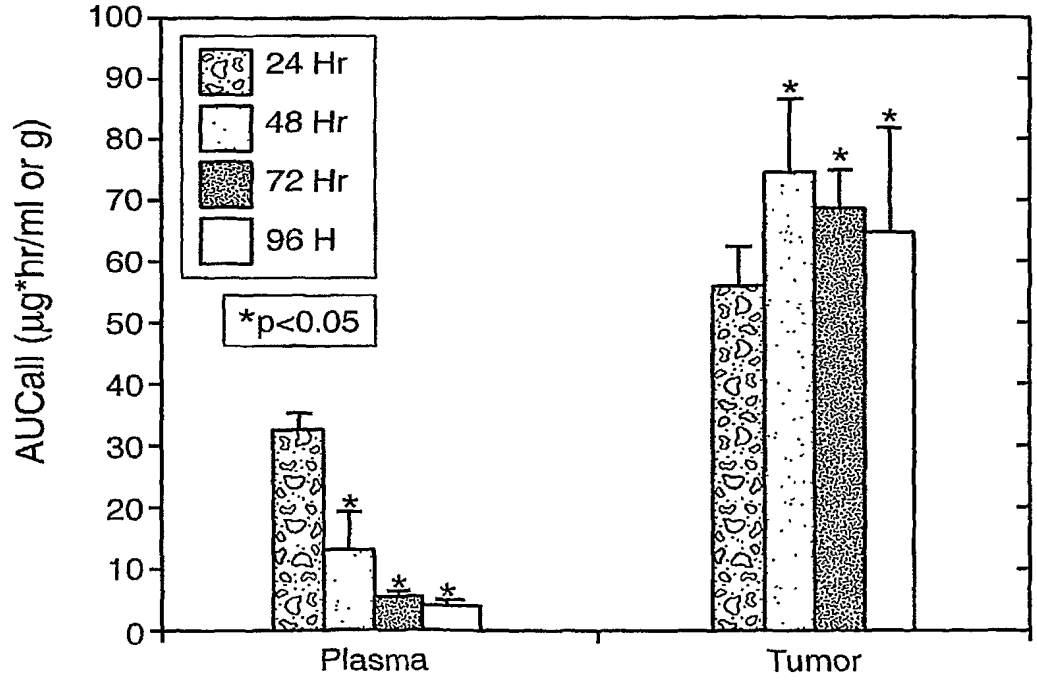


FIG._17

Efficacious Tumor Melphalan Exposures Achieved at Each Time Interval While Systemic Melphalan Exposure Decreased



• Efficacy demonstrated at 24 hr interval in TLS174T xenograft mouse model

FIG._18

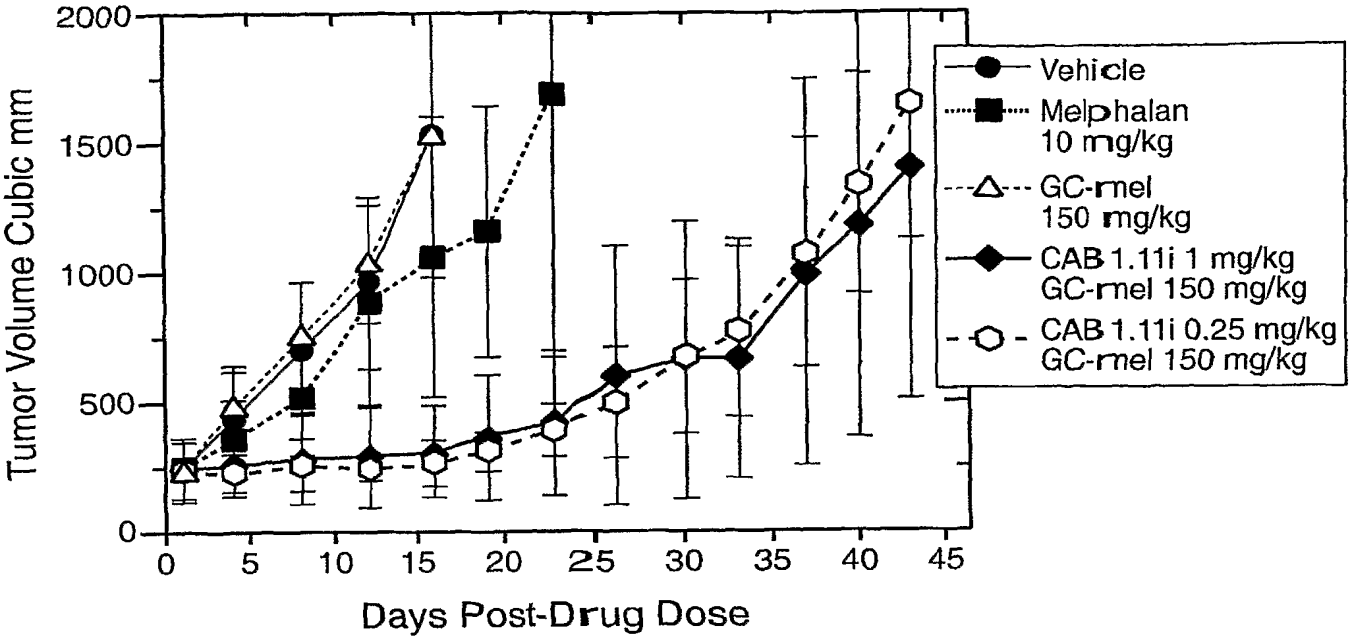


FIG._19A

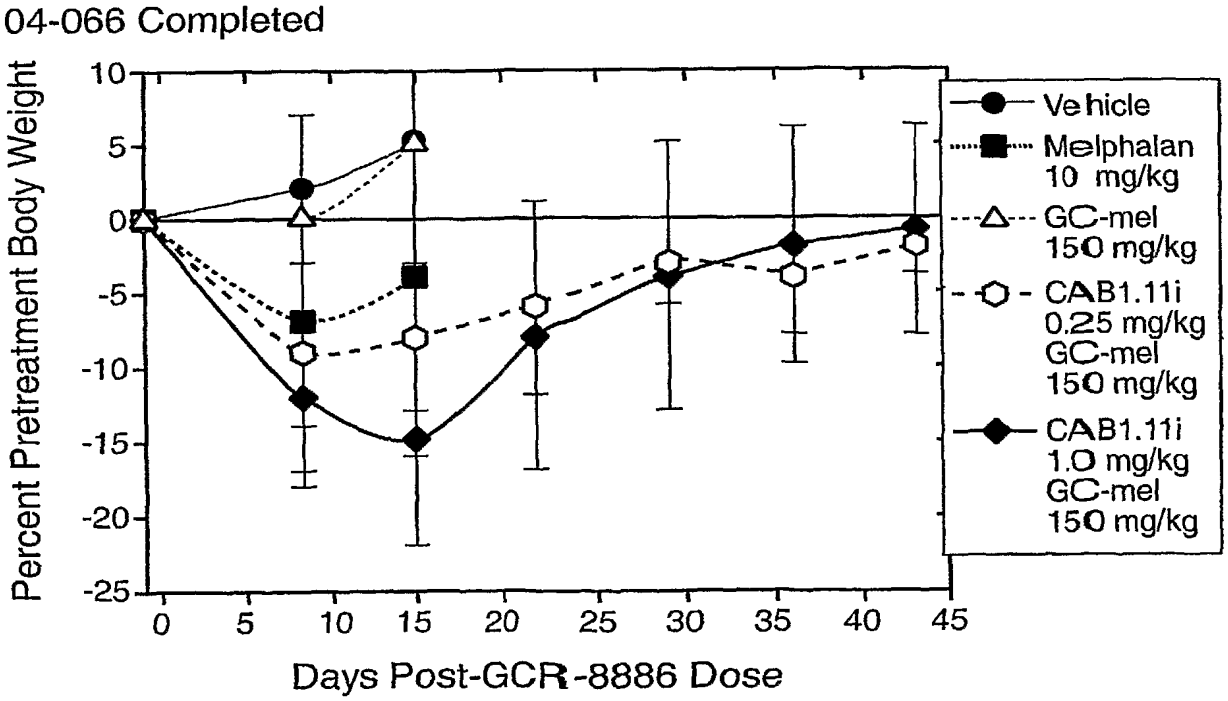


FIG._19B

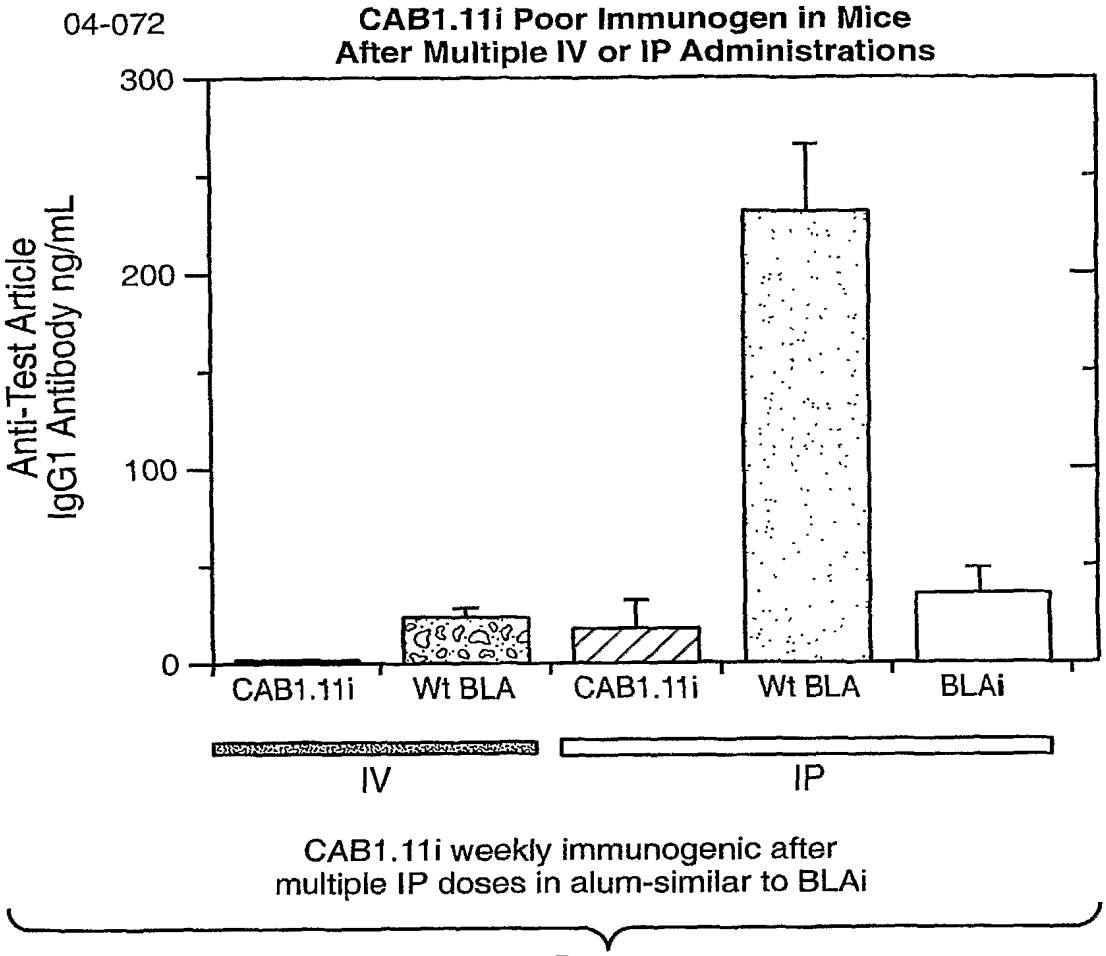

04-072
CAB1.11i Poor Immunogen in Mice
After Multiple IV or IP Administrations
Anti-Test Article
IgG1 Antibody ng/mL
300
200
100
0
CAB1.11i
Wt BLA
CAB1.11i
Wt BLA
BLAi
IV
IP
CAB1.11i weekly immunogenic after
multiple IP doses in alum-similar to BLAi

FIG._20

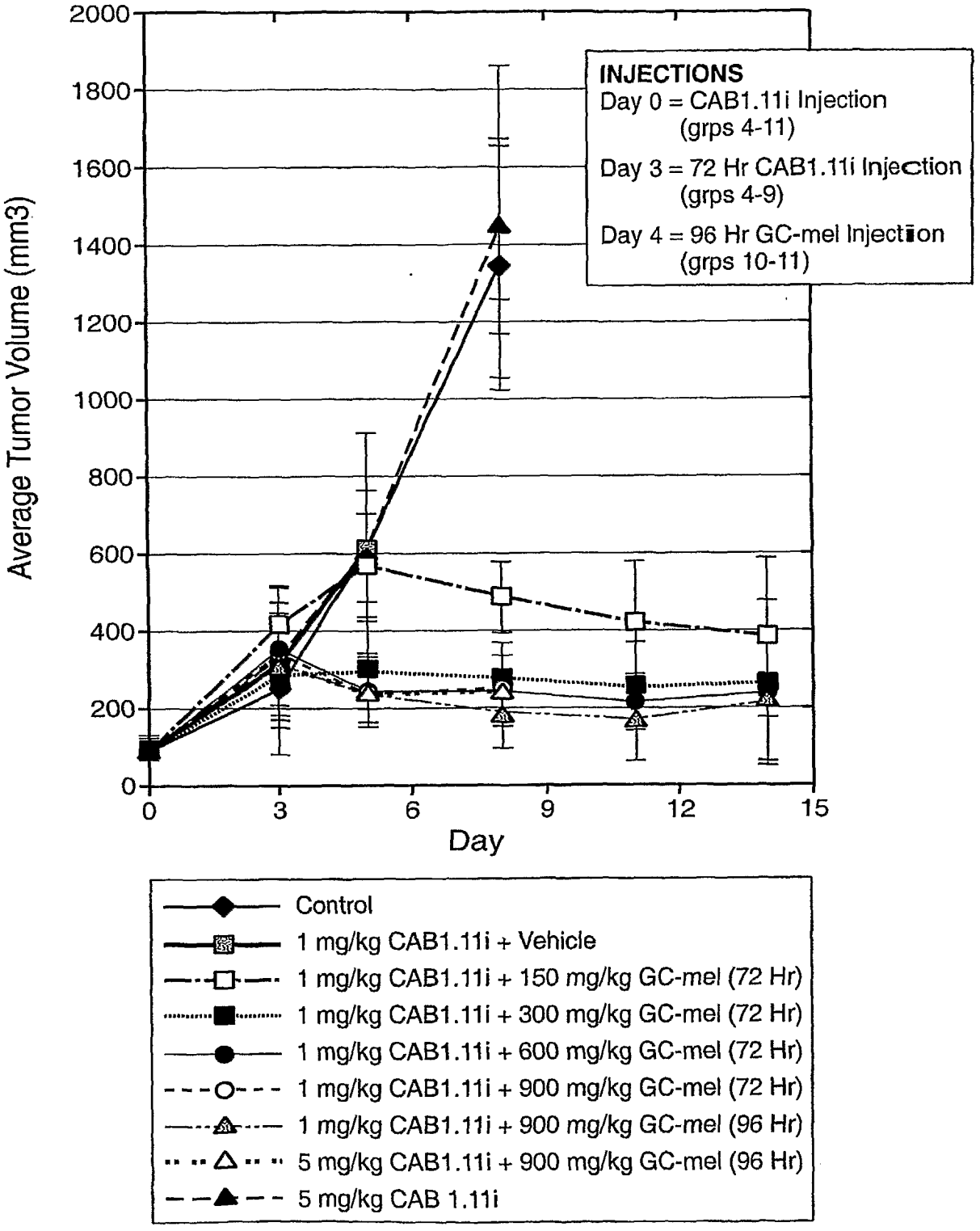

INJECTIONS
Day 0 = CAB1.11i Injection (grps 4-11)
Day 3 = 72 Hr CAB1.11i Injection (grps 4-9)
Day 4 = 96 Hr GC-mel Injection (grps 10-11)
Average Tumor Volume (mm3)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
3
6
9
12
15
Day
Control
1 mg/kg CAB1.11i + Vehicle
1 mg/kg CAB1.11i + 150 mg/kg GC-mel (72 Hr)
1 mg/kg CAB1.11i + 300 mg/kg GC-mel (72 Hr)
1 mg/kg CAB1.11i + 600 mg/kg GC-mel (72 Hr)
1 mg/kg CAB1.11i + 900 mg/kg GC-mel (72 Hr)
1 mg/kg CAB1.11i + 900 mg/kg GC-mel (96 Hr)
5 mg/kg CAB1.11i + 900 mg/kg GC-mel (96 Hr)
5 mg/kg CAB 1.11i

FIG._21

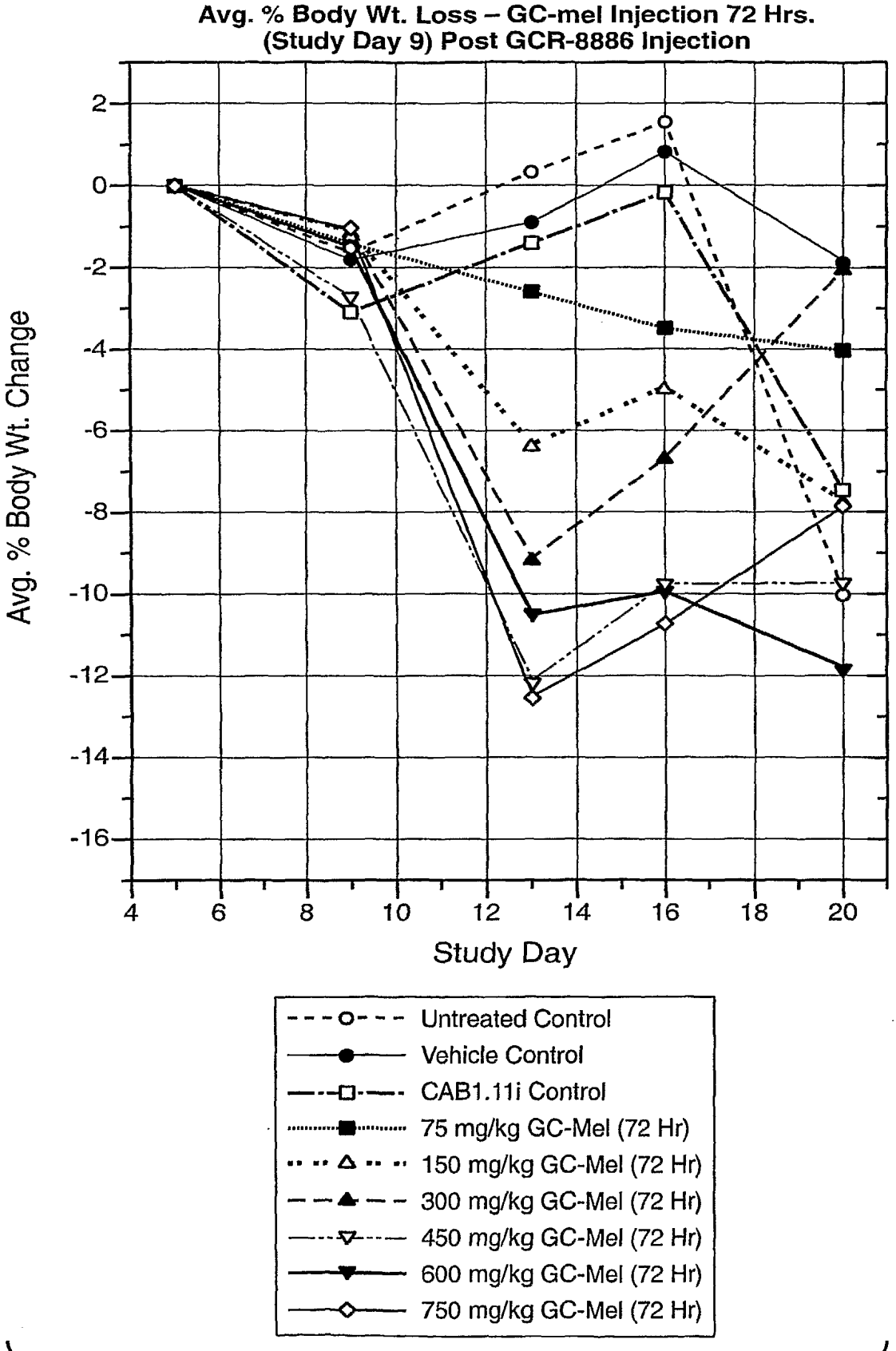

Avg. % Body Wt. Loss – GC-mel Injection 72 Hrs.
(Study Day 9) Post GCR-8886 Injection
Avg. % Body Wt. Change
2
0
-2
-4
-6
-8
-10
-12
-14
-16
4
6
8
10
12
14
16
18
20
Study Day
Untreated Control
Vehicle Control
CAB1.11i Control
75 mg/kg GC-Mel (72 Hr)
150 mg/kg GC-Mel (72 Hr)
300 mg/kg GC-Mel (72 Hr)
450 mg/kg GC-Mel (72 Hr)
600 mg/kg GC-Mel (72 Hr)
750 mg/kg GC-Mel (72 Hr)

FIG._22A

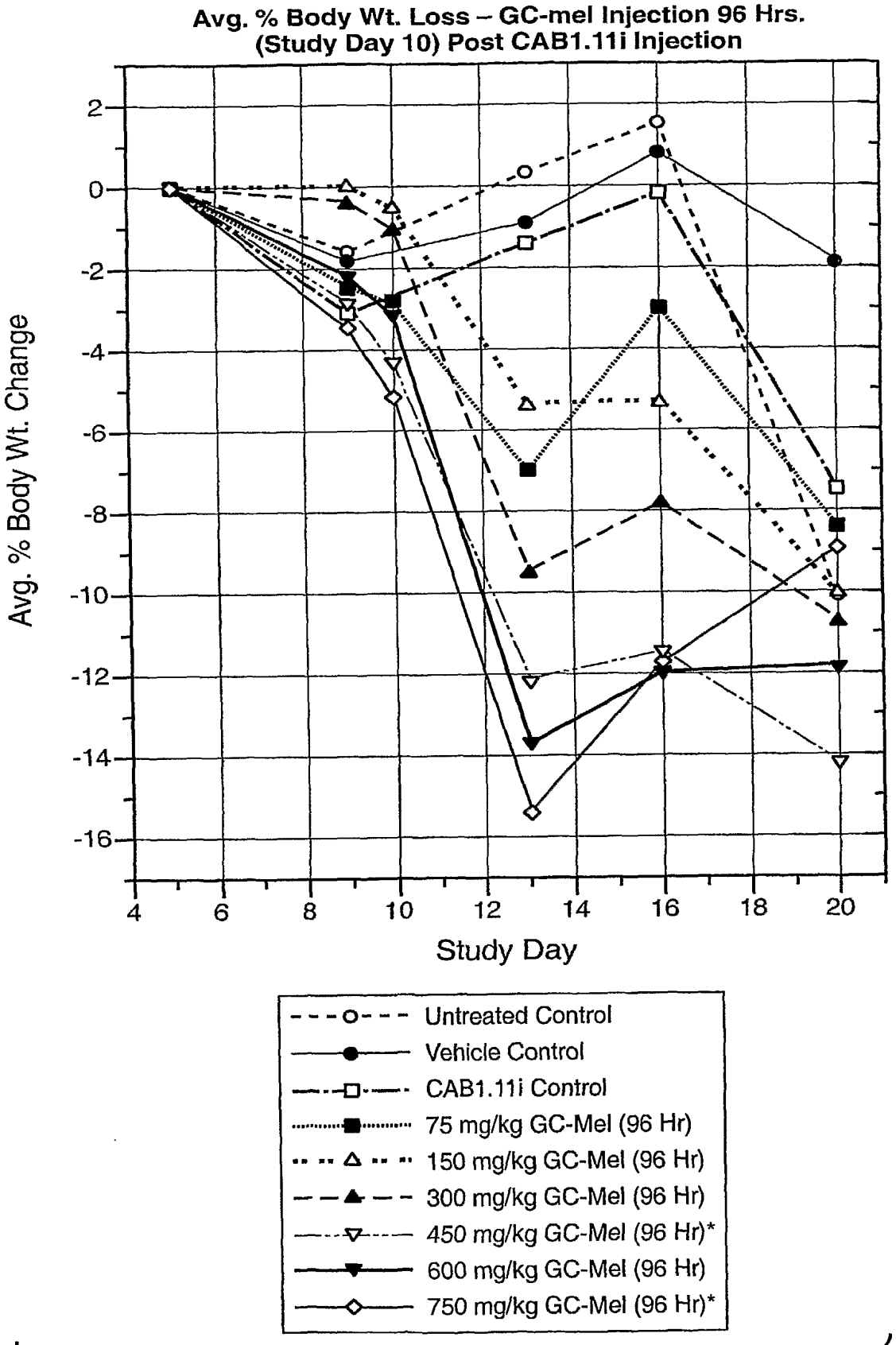

Avg. % Body Wt. Loss – GC-mel Injection 96 Hrs.
(Study Day 10) Post CAB1.11i Injection
Avg. % Body Wt. Change
2
0
-2
-4
-6
-8
-10
-12
-14
-16
4
6
8
10
12
14
16
18
20
Study Day
Untreated Control
Vehicle Control
CAB1.11i Control
75 mg/kg GC-Mel (96 Hr)
150 mg/kg GC-Mel (96 Hr)
300 mg/kg GC-Mel (96 Hr)
450 mg/kg GC-Mel (96 Hr)*
600 mg/kg GC-Mel (96 Hr)
750 mg/kg GC-Mel (96 Hr)*

FIG._22B

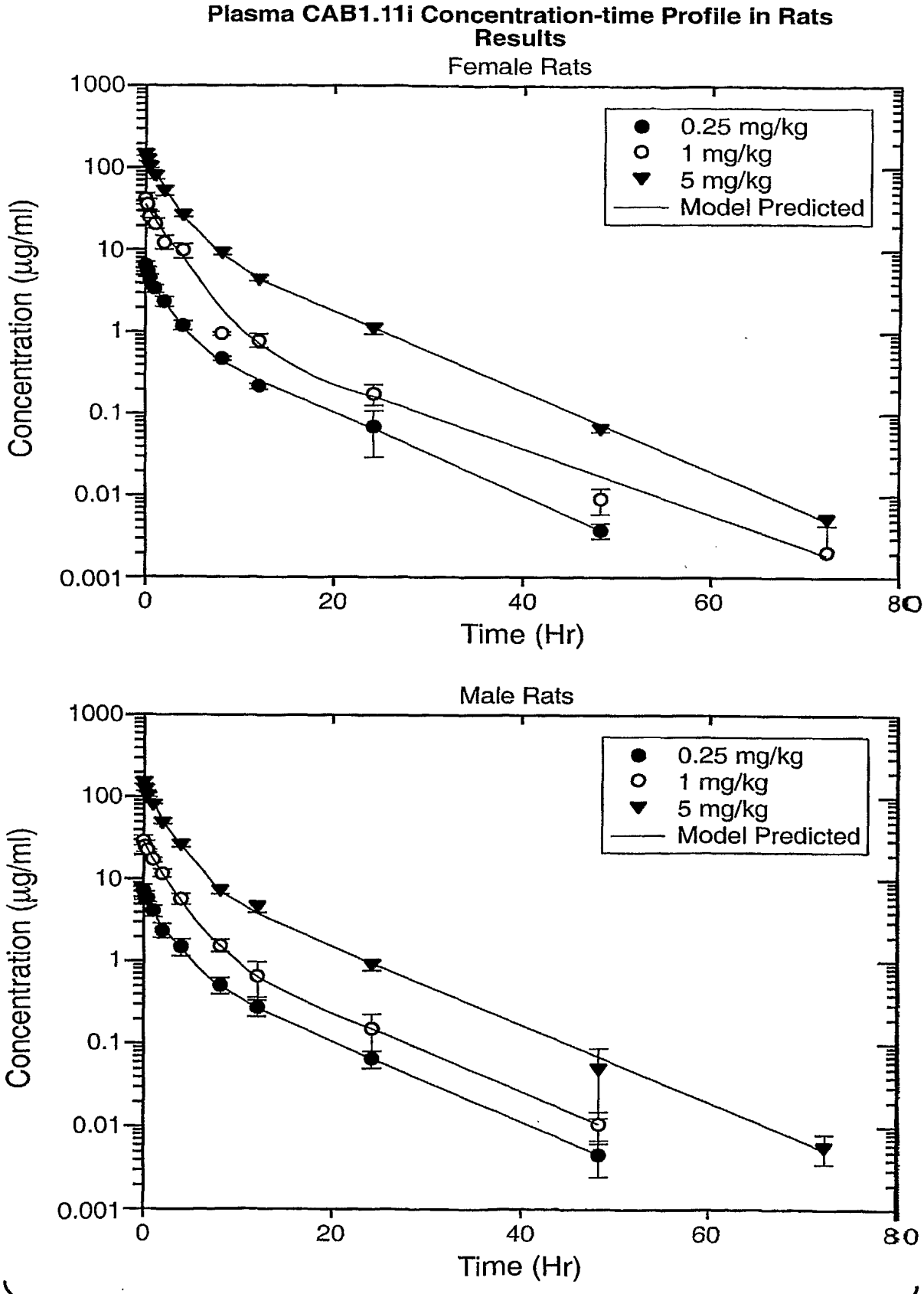
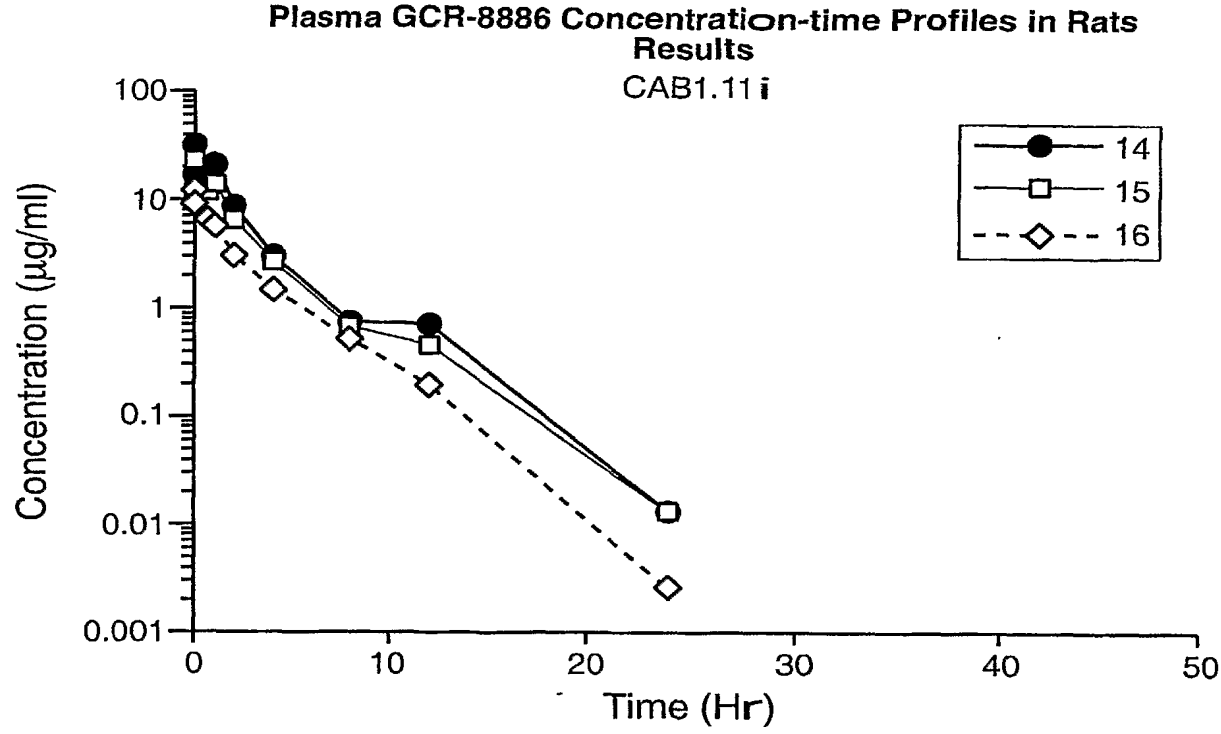

Plasma CAB1.11i Concentration-time Profile in Rats
Results
Female Rats
Concentration (µg/ml)
1000
100
10
1
0.1
0.01
0.001
0
20
40
60
80
Time (Hr)
0.25 mg/kg
1 mg/kg
5 mg/kg
Model Predicted
Male Rats
Concentration (µg/ml)
1000
100
10
1
0.1
0.01
0.001
0
20
40
60
80
Time (Hr)
0.25 mg/kg
1 mg/kg
5 mg/kg
Model Predicted

FIG._23


Plasma GCR-8886 Concentration-time Profiles in Rats
Results
CAB1.11 i
Concentration (µg/ml)
100
10
1
0.1
0.01
0.001
0
10
20
30
40
50
Time (Hr)
14
15
16

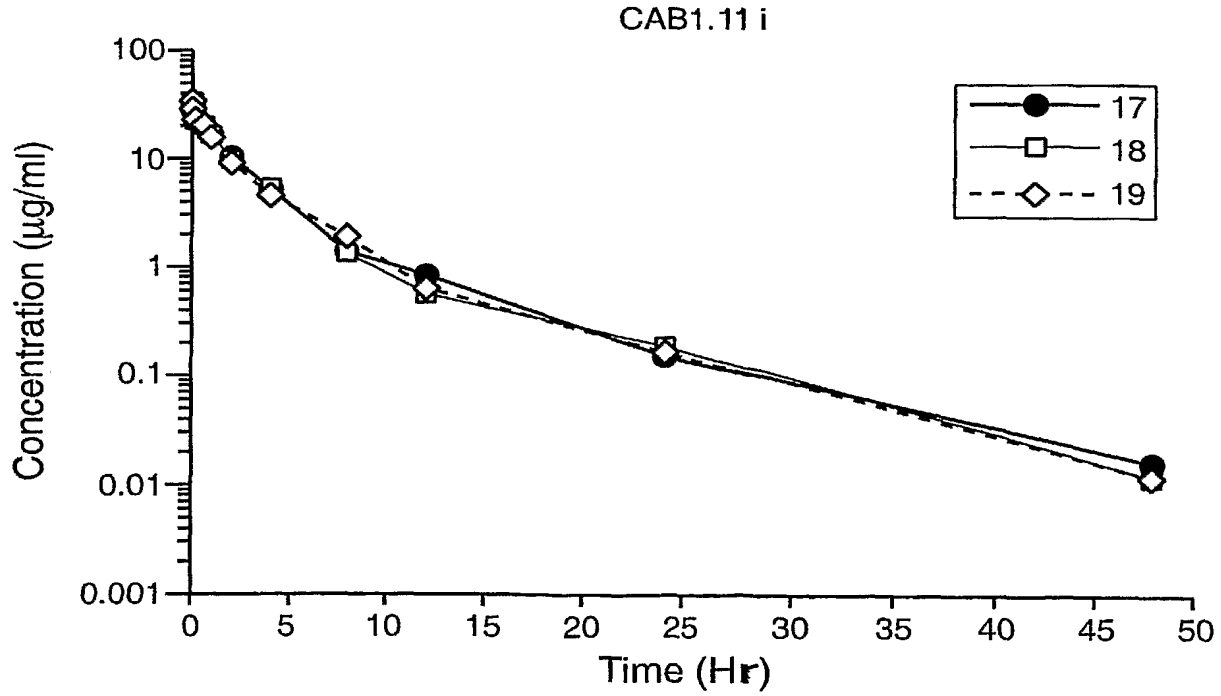

CAB1.11 i
Concentration (µg/ml)
100
10
1
0.1
0.01
0.001
0
5
10
15
20
25
30
35
40
45
50
Time (Hr)
17
18
19

FIG._24A

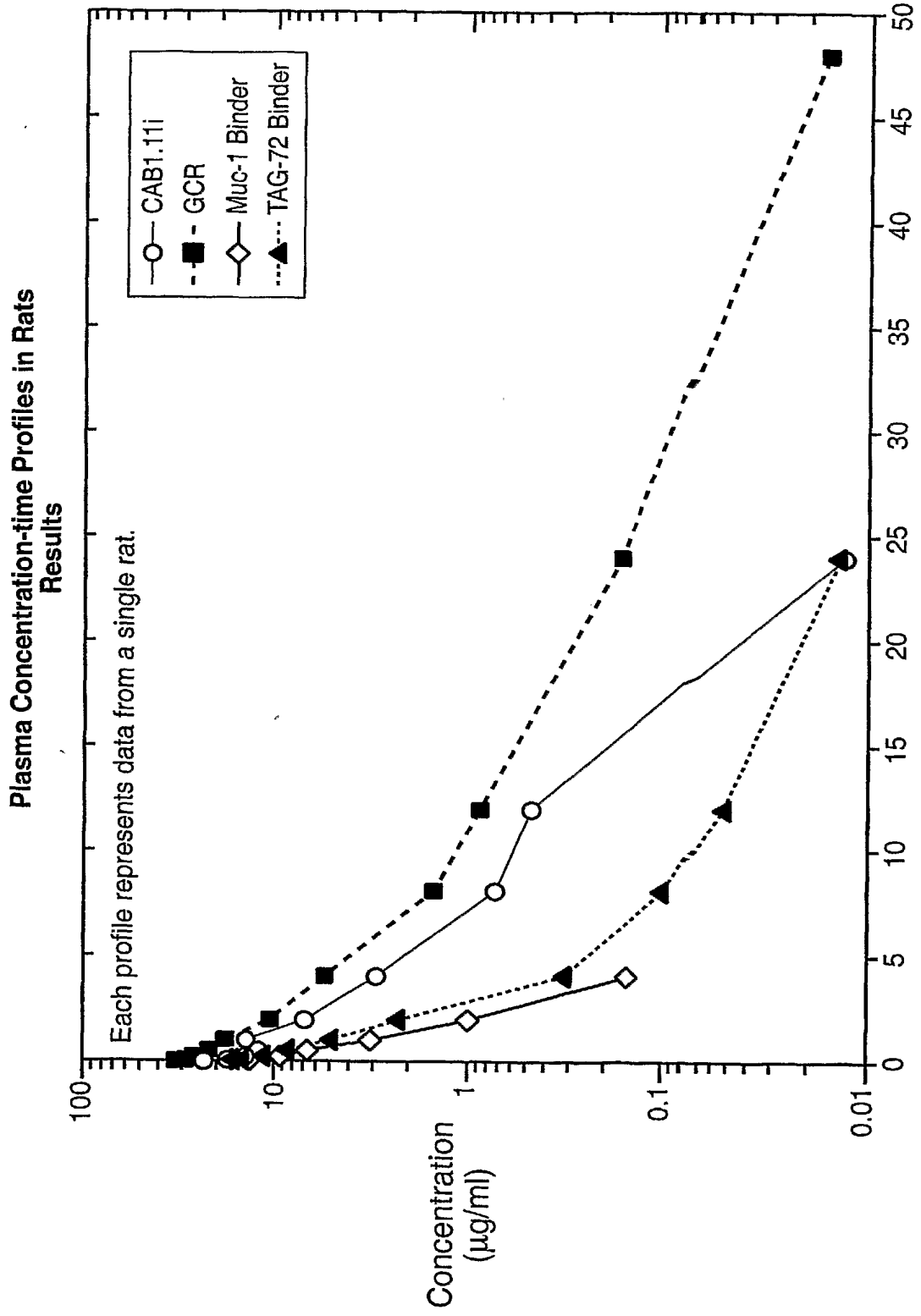

Plasma Concentration-time Profiles in Rats
Results
Each profile represents data from a single rat.
CAB1.11i
GCR
Muc-1 Binder
TAG-72 Binder
Concentration (µg/ml)
100
10
1
0.1
0.01
Time (Hr)
0
5
10
15
20
25
30
35
40
45
50

FIG._24B

GCR-8886 Concentration-time Profiles Following 2 Weekly Doses Results

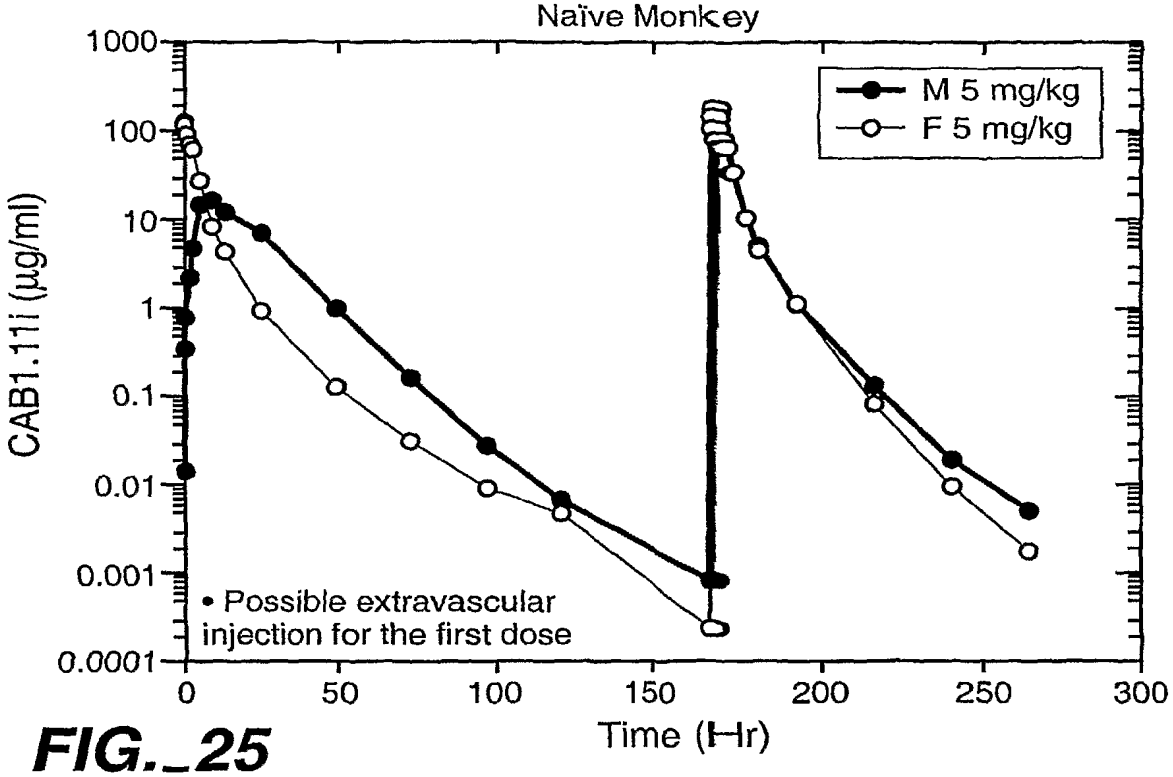


FIG._25

CAB1.11i PK Parameter Estimates with or without CEA Coadministration Results

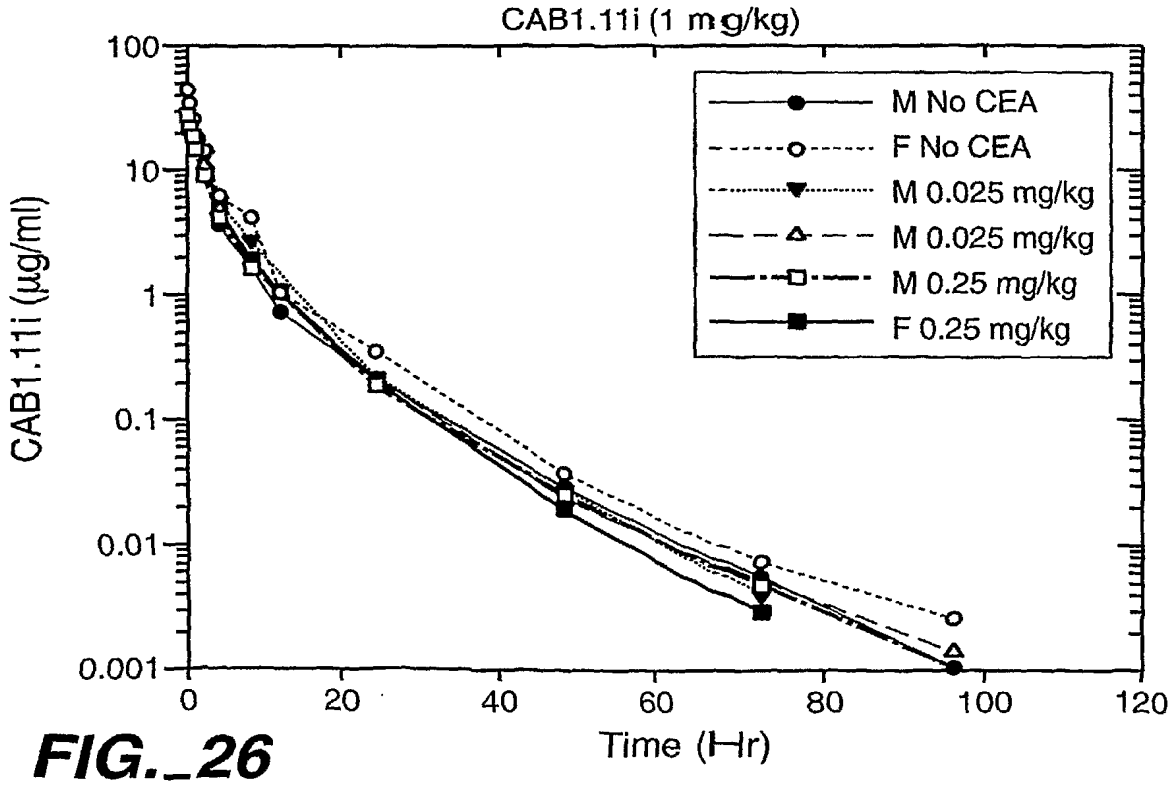


FIG._26